NETWORKWORLD

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Everything *that* matters

Exploring what's most important in IT today

NEWSPAPER ■ $5.00

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Exploring what's most important in IT today

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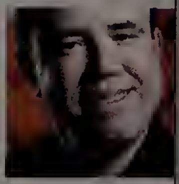

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PEERSAY

No need for Y2K-like panic

Re: IPv6 vs. Y2K and GOSIP (www.nwdocfinder.com/3055):

"I don't see any kind of Y2K-like panic" among federal CIOs about the IPv6 mandate, says Charles Lee, CTO for Verizon Federal.

Nor should there be any Y2K-like panic, since: 1) We're starting more than 4 years ahead of IPv4 depletion; 2) the OMB mandate only requires IPv6-capable deployment for federal networks; and (perhaps most importantly) 3) When we run out of continuous IPv4 blocks, the entities that have the business problem are the carriers and ISPs, not enterprise or federal networks.

John Curran

Discuss at www.nwdocfinder.com/3054

Blame industry, not the government

Re: How feds are doing the prudent thing with IPv6 (www.nwdocfinder.com/3057):

The main point of this article is that the Feds are not implementing IPv6 as mandated. What the article fails to reveal is that industry is not making IPv6 products that will encourage implementation of IPv6. If I want to implement IPv6 on my production network, I have to step backwards in capability from my IPv4 network. When the mandates were first published (DoD in 2003, OMB in 2005), the expectation was that industry would rush to produce IPv6 capabilities, equivalent or better than currently available in IPv4. Reality has been quite different. The Department of Defense and the U.S. government just don't have the influencing power over industry that they once had, because they make up a much smaller percentage of the marketplace now.

What we need from industry are advanced capabilities in IPv6 products — products that utilize IPv6 mobility and auto-configuration, and of course security, in ways that IPv4 cannot. When applications exist that can do things in IPv6 that they cannot do in IPv4, then the incentive to migrate will finally be positive. Right now, we can't even get basic security capabilities for our IPv6 networks. Network management over IPv6 is all but nonexistent and advanced IPv4 features, like multicast, and prioritization, are supported in only a few IPv6 products. Security, though, is the biggest hold-up, and it isn't because OMB did not mandate implementation of IPv6 security. It is because the commercial products don't exist. Federal agencies are not going to implement IPv6 with gaping security holes.

Trace Gunsch

Discuss at www.nwdocfinder.com/3056

> "It always amazes me that seemingly intelligent people cannot see the harm in the erosion of privacy and individual rights."

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Users have responsibilities, too

Re: Can IT and end users get along? (www.nwdocfinder.com/3059):

I frankly resent the overall tone of this (and other articles on the subject) that seem to imply that it is IT's fault and our responsibility to "fix" the problem.

It goes both ways, folks. Try giving us some respect and at least make a token attempt to practice reasonable "safe computing" practices. I've lost count of the number of times people have flat-out said "No, I won't do it." How about the nurse whose password is "00o0o0o0o" or "99999999"?

Hank Arnold

Discuss at www.nwdocfinder.com/3058

Absolute power

Re: Illegal wiretapping is a dangerous wedge (www.nwdocfinder.com/3063):

It always amazes me that seemingly intelligent people cannot see the harm in the erosion of privacy and individual rights. Perhaps too many forget the lessons taught by people like J. Edgar Hoover. Government is made up of people, and in a perfect world all people would be good. Sorry, but that is not the case. Something about absolute power corrupts. . . .

Robert O'Connor

Discuss at www.nwdocfinder.com/3062

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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BLOGOSPHERE

Jeff Doyle's next book. Last time, Cisco Subnet blogger and IP routing expert Jeff Doyle asked readers to suggest topics for his third book. He writes: "The majority of your responses suggested one of three topics: CCIE-level switching, MPLS and large-scale network design. Brett Bartow at Cisco Press followed your posts and tells me that he particularly likes the idea of a switching book. I do too, although it's a stretch to fit Layer 2 switching under the umbrella of 'Routing TCP/IP.'" **www.nwdocfinder.com/3067**

Virtualization's killer app. A Microsoft Subnet blogger writes: "Virtualization not only adds another layer of abstraction between hardware and software environments, it breaks the direct one-to-one link between application and hardware. One box can operate many virtual instances depending on load and throughput. Since server consolidation is the current 'killer app' driving virtualization, understanding the interplay of virtual machines configured to run on one box or across multiple hardware boxes becomes much more important." **www.nwdocfinder.com/3068**

I didn't know that was illegal! Mark Gibbs writes in Gibbsblog: "Perhaps it was naive of me, but I always thought that when you purchased a CD you were purchasing the right to use the music on it for personal purposes without limitation as to the playback mechanism used. Apparently I'm wrong — at least according to the RIAA. Jeffrey and Pamela Howell went on trial after they were sued in August 2006 by the RIAA after SafeNet discovered 'evidence' that they had used the KaZaa file-sharing network." **www.nwdocfinder.com/3069**

Our blogger complained, Cisco listened. Cisco Subnet blogger Michael Morris speaks up for Cisco customers all over the world. He writes: "Last July, after arriving at Cisco Live (Networkers) and picking up my much-anticipated but subsequently inferior conference bag, I wrote a blog complaining how cheap they were. It seems like I got to Cisco. ;-) Cisco sent an e-mail today titled 'Cast your Vote — Networkers Conference Bag.'" **www.nwdocfinder.com/3075**

General Motors turns down the heat, saves millions. Layer 8 looks at how General Motors is going green: "Looking to save potentially millions of dollars in energy bills, General Motors is turning down the heat and encouraging employees to help find other energy inefficiencies in its 60+ U.S. factories. **www.nwdocfinder.com/2984**

IT VIDEO

INTERVIEWS, THE COOLEST TOOLS AND MORE

PANORAMA PODCAST:

Why IT automation will be big in 2008

Rob Gardos, CEO of GridApp Systems, discusses additional reasons why 2008 will be big for the IT automation market.

www.nwdocfinder.com/3076

DEMO PODCAST:

Six minutes with . . . Paul Lego of Dash

In this episode, Dash Navigation CEO Paul Lego talks about riding the rocket ship after the launch earlier this year.

www.nwdocfinder.com/3077

HELP DESK TOOL CHEST:

How to build your own NAS box

Ron Nutter offers a detailed overview of building a NAS box, answers listener mail and talks with TrueCrypt about protecting sensitive data.

www.nwdocfinder.com/3078

BEST OF NW'S NEWSLETTERS

Cisco combats exam cheating with digital ID policy

IT Careers and training: In a bid to combat cheating and to "protect the value of certifications," Cisco now requires all examination-takers to provide digital photos and digital signatures during the admission process at Pearson VUE, Cisco's primary test-center network. According to Cisco: "This new layer of identity authentication will help to ensure candidate identity and result in increased assurance that individuals are presenting accurate certification records in the marketplace." Cisco says the move is a precautionary one against cheating in the Cisco exam world, which Cisco Jeanne Dunn, senior director for Learning@Cisco says is an "isolated problem." However, CertGuard, which works with vendors to combat the exam-cheating industry, believes cheating in the Cisco world is more widespread than the company is admitting publicly. "[Cisco] really [needs] to open up their favorite Internet browser and Google 'CCIE' or 'CCNA.' These brain-dump companies [which publish actual questions and answers from Cisco tests] are easily searchable, and their search engine advertising is often much better than [that of] most legitimate practice-test providers," says CertGuard CEO and Founder Robert Williams. **www.nwdocfinder.com/3064**

Network access control: A college reports that NAC is delivering a new type of cost avoidance that is helping to pay for its NAC deployment. By discovering and controlling peer-to-peer music and video file-sharing with its NAC gear, the school has cut back on the number of subpoenas it gets from music industry groups upset about pirated copyright material. It costs the college $1,200 to respond to each subpoena, so the savings add up. Since installing NAC before the start of the fall semester, the school has received no subpoenas at all from the Recording Industry Association of America, the watchdog group protecting music copyright. This information came out as part of an Enterasys Networks case study on NAC presented at a Network World IT Roadmap session held in Washington, D.C. Details of the presentations for the session are available via the DocFinder number below. Create an account with a user name and password, then choose "Washington, D.C." from the dropdown menu. **www.nwdocfinder.com/3065**

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Sprint Nextel names new CEO

Sprint Nextel has appointed Daniel Hesse, the former chief executive of Embarq, as its new CEO. Hesse, 54, previously had served as CEO of Sprint's local telecommunications division before the company spun it off and formed Embarq in 2006. Before that, he spent 23 years at AT&T and was the president and CEO of AT&T Wireless Services from 1997 to 2000. Sprint has been searching for a new CEO since October, when former CEO Gary Forsee stepped down under investor pressure. Hesse takes over during a difficult time for Sprint, which in recent years has experienced difficulties in integrating former Nextel users into the Sprint network, investor nervousness over the future of its $5 billion WiMAX investment, and a shrinking subscriber base. **www.nwdocfinder.com/2973**

Nortel sues Vonage. Vonage has been sued by yet another company for patent infringement, this time by Nortel. In a suit filed Dec. 14, Nortel alleges that Vonage infringes on 12 of its patents, which broadly deal with click-to-call systems, the management or architecture of VoIP system resources, and call-tracing methods in packet-switched networks. This suit comes in the wake of a suit Vonage filed against Nortel earlier this year alleging Nortel violated three of its patents. Two of the patents involved in that suit concern multiplexed digital-packet telephone systems, and the third concerns packet-switching communications systems.
www.nwdocfinder.com/2974

Google develops Wikipedia rival. Google is developing an online publishing platform where people can write entries on subjects they know about, an idea that's close to Wikipedia's user-contributed encyclopedia but has key differences. The project, which is in an invitation-only beta stage, lets users create clean-looking Web pages with their photo and entries, which are termed "knols" for "unit of knowledge," Google said. Google wants the knols to develop into a deep repository covering such topics as geography, history and entertainment. Google's project will have to catch up with Wikipedia, which includes more than 7 million articles in 200 languages. Anonymous users constantly update Wikipedia entries in an ever-growing online encyclopedia that's edited by a network of vetted editors. Google's project identifies each author, and, in contrast to Wikipedia, its entries can't be edited or revised by others.
www.nwdocfinder.com/2975

IBM expects $1 billion in India revenue. IBM expects about $1 billion in revenue from India, as the company's hardware and services business soars in the local market. The company made $700 million in revenue from India last year. In the first three quarters of this year, the company posted growth of 39% over last year's revenue, putting it on course to hit $1 billion for the year. Unlike Indian outsourcers, who have focused on more lucrative contracts abroad, multinational services companies, such as IBM, have focused on the growing Indian outsourcing market. India is a key hub for the global delivery of services by IBM, as the company takes advantage of the country's large pool of skilled manpower.
www.nwdocfinder.com/2978

BGP bug bites Juniper software. Juniper Networks issued a security bulletin warning users of a bug in its JUNOS router software. The glitch reportedly created problems for service providers earlier this month in processing Border Gateway Protocol traffic. It allowed malformed packets to induce "interface flapping," in which the interface of a network device is left going up and down repeatedly, according to British IT blog The Register. Service-provider experiences with the situation also were discussed on the Juniper mailing list at puck.nether.net. JUNOS releases 7.3 to 8.4 are affected. Juniper confirmed the situation and said it was resolved. It declined to provide *Network World* with a copy of the security bulletin, citing company policy.
www.nwdocfinder.com/2979

Privacy, data breaches run rampant. If it seems as though digital privacy invasions and personal-data breaches happen every day in corporate America, new survey results from Deloitte & Touche and Ponemon Institute only reinforces that notion. Of the 827 North American security and privacy professionals surveyed, 66% said they were aware of six to 20 "privacy incidents" in their organizations during the past year where personally identifiable information was mishandled or exposed. In addition, 85% said there was at least one significant data breach that required notification in the last 12 months. The sheer volume of incidents has resulted in these professionals complaining they spend too much of their time in incident-response activities, such as notification and remediation, rather than on root-cause analysis and employee training.
www.nwdocfinder.com/2980

Apple patches keep coming. Apple kept its rush of year-end security patches coming last week, issuing 31 updates for its Mac OS X operating system. The patches fix components ranging from the Address Book and iChat software to such under-the-covers operating system components as ColorSync, the IO Storage Family, and the Perl, Python and Ruby programming languages. Most of these flaws theoretically could be exploited by attackers to run unauthorized software on the Mac, although some of them had other security implications, such as allowing an attacker to gain access to sensitive information or download files to the computer without authorization. These updates are for the Mac OS X 10.4 and 10.5 operating systems, code-named Tiger and Leopard, respectively. The patches come just days after Apple released a major update to its QuickTime player and a Java security fix for the Mac OS X 10.4 operating system.
www.nwdocfinder.com/2981

Successful phishing attacks up. Phishing attacks against U.S. consumers have been more successful this year than last, according to Gartner. The good news is that consumers have been more able to recover their losses from phishing than they were in the past. Gartner's online survey of 4,500 adults showed 3.3% of them lost money because of a phishing attack, compared with 2.3% who lost money in 2006 and 2.9% in 2005. The average dollar-loss per incident declined this year to $886 from an average $1,244 in 2006. Because there were more victims, the overall loss to phishing was higher, however. By extrapolating the numbers to the entire U.S. population, Gartner says it appears that 3.6 million adults lost $3.2 billion to phishing attacks in the 12 months ending in August 2007. **www.nwdocfinder.com/2982**

Unix admin tried to axe power grid. A California man pleaded guilty to charges that he shut down the nonprofit data center responsible for managing the state's electrical supply. Lonnie Denison, 33, is facing five years in prison and a $250,000 fine after admitting he broke a glass cover and hit the emergency "off" switch at the California Independent System Operator data center in Folsom, Calif., on April 15. In knocking Cal-ISO's systems offline, Denison effectively cut the state off from the energy market, leaving it vulnerable to blackouts.
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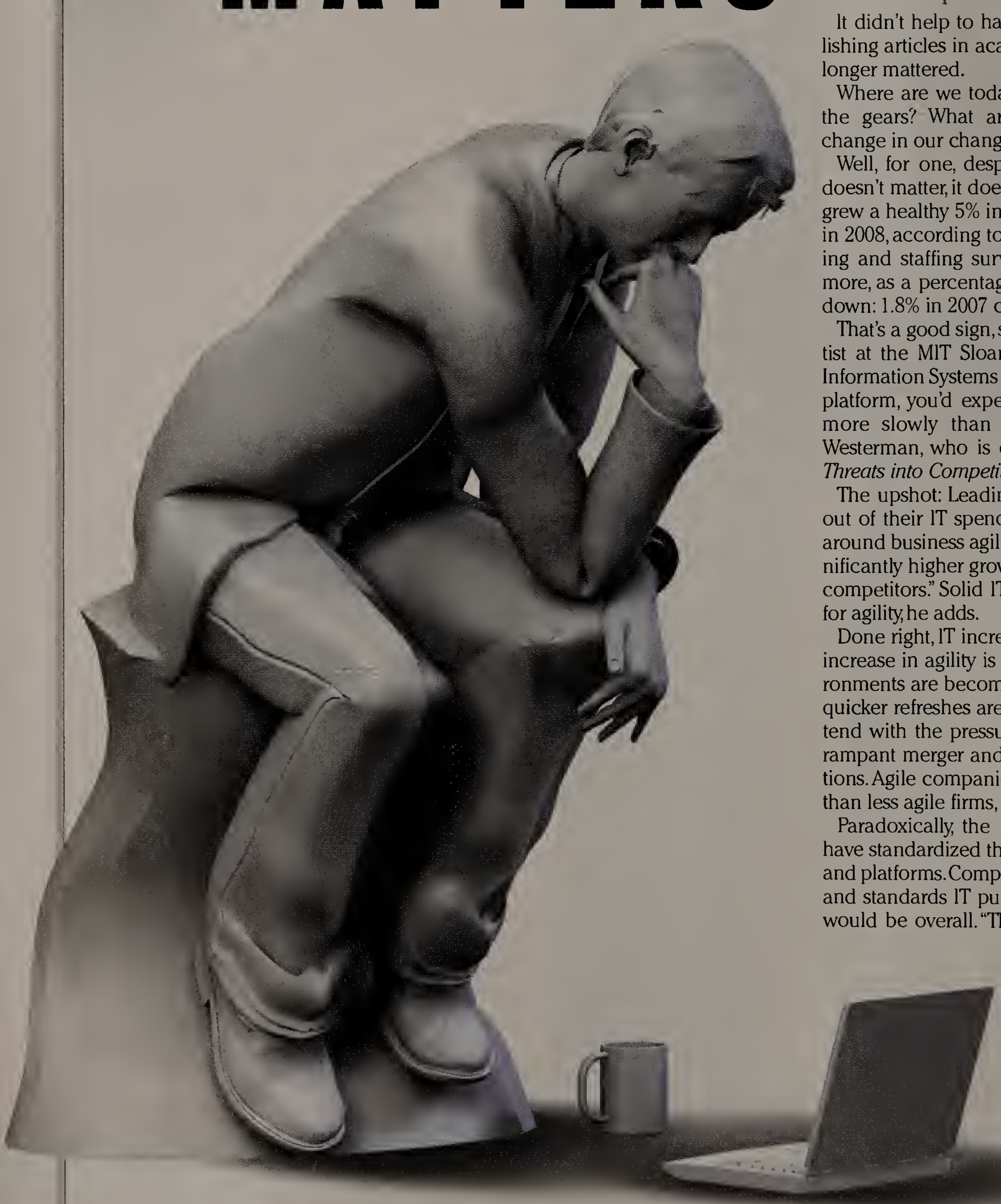
WHAT REALLY MATTERS

This is the stuff that counts, that drives the industry, that keeps us all going

BY JOANNE CUMMINGS



Let's face facts: IT isn't what it once was. The pall cast by the dot-com collapse at the beginning of the decade eroded corporate confidence in IT, took the shine off IT as a desirable career path and even made us question our self-worth.

It didn't help to have such pundits as Nicholas Carr publishing articles in academic journals proclaiming that IT no longer mattered.

Where are we today, however? What matters? What turns the gears? What are the core developments powering change in our change-happy world?

Well, for one, despite Carr's continued assertion that IT doesn't matter, it does. In fact, IT spending in North America grew a healthy 5% in 2007 and is forecast to repeat that feat in 2008, according to Computer Economics' latest IT spending and staffing survey. And while companies are buying more, as a percentage of corporate revenue IT spending is down: 1.8% in 2007 compared with 2% in 2006.

That's a good sign, says George Westerman, research scientist at the MIT Sloan School of Management's Center for Information Systems Research (CISR). "If you have a scalable platform, you'd expect the cost of that platform to go up more slowly than the revenue you get from it," says Westerman, who is co-author of *IT Risk: Turning Business Threats into Competitive Advantage*.

The upshot: Leading organizations are getting real value out of their IT spending, and the advantages often revolve around business agility, Westerman says. "Agile firms have significantly higher growth and have better gross margins than competitors." Solid IT infrastructure is a key building block for agility, he adds.

Done right, IT increases efficiencies and reliability, but the increase in agility is the key benefit because business environments are becoming less predictable. Cycles are shorter, quicker refreshes are required and companies have to contend with the pressures of globalization, thinning margins, rampant merger and acquisition activity, and tighter regulations. Agile companies navigate these choppy waters better than less agile firms, increasing revenue and profits faster.

Paradoxically, the most agile companies are those that have standardized the bulk of their core business processes and platforms. Companies once believed that the more rules and standards IT put into place, the less agile the business would be overall. "The thinking was, if we do the kinds of things that will get us to cleaner infrastructure and applications architecture, all the rules that helped us get there would restrict the flexibility we need to be agile," Westerman says. "But that's just not true." Enterprises with well-managed IT "become more agile because now it's easier to handle major changes, whether it be business expansion or launching new services," he says. "By putting the rules in place to make sure we run our architecture and infrastructure effectively, our businesses actually become more agile — and successful."

Signs that IT is more critical than ever to business are plentiful. In a recent Harvard Business School/MIT CISR survey of 175 CIOs, 80% of respondents said they are members of the executive leadership team. This compares with the 86% of CIOs who were just wishing for such recognition in 2006. "Senior management increasingly recognizes technology as central to innovation and competitive advantage," the study says (see www.nwdocfinder.com/3038). "As a result, more and more CIOs are gaining a prominent seat at the table in their executive teams and playing an active role in strategic business decisions."

That's when IT becomes a real differentiator. "A seat at the table is great because not only can you be there to help suggest great possible uses of the technology you already have, but you can also be part of the discussion so IT can anticipate where the business is going," Westerman says. "The idea is to have the technology ready when the business needs it, rather than finding out after the business needs it and spending six or nine months figuring out how to get the technology there," he adds.

In the most agile, successful companies, IT becomes a co-creator of strategic business initiatives along with the business leaders. "That happens here," says Josh Hinkle, manager of network management and security at the American Heart Association (AHA) in Camp Hill, Pa. "A lot of initiatives at the company level originate with guys like me coming up with ideas, making suggestions and then selling them."

Yes, IT does matter.

Networks matter

However, all the great ideas in the world won't add up to any advantage if you don't have the proper underpinnings to build on. "A well-managed, reliable infrastructure is the foundation for good risk management, good business performance and good agility," Westerman says. "And the network is at the center of that infrastructure."

So, networks really matter. And they become more critical with time, according to Metcalfe's Law, the rule coined by Ethernet inventor Robert Metcalfe that says the more people and services access and rely on a network, the more useful it becomes. That effect is even more profound in a world of anytime, anywhere, any-way access.

"We're funding research that doesn't come from researchers in our town," Hinkle says, noting that his Web-based infrastructure makes heavy use of WAN acceleration, traffic shaping and application performance monitoring. "The only way to reach them is to provide them with information in real time anywhere in the world. Our business is set up to provide information in digital format when and how people want it, whether that's during the business day or at 11 at night, here or halfway across the world."

The AHA already has seen the benefits of such ubiquitous access. "A lot of the people we serve aren't even in the United States; they're researchers from Europe, Japan and Canada requesting grants. Because of the efficiency of our network and Web applications, the base is widening and we're seeing more diverse people requesting grants, and doing research," Hinkle says.

Boston's Northeastern University also is using the network to remove the obstacles of space and time. The school's Northeastern On-Demand initiative is an attempt to virtualize the university experience so the nearly 6,000 students who participate in its cooperative education program will still feel a strong connection to the school. That program's students work in real-world enterprises as part of their course requirements. At any one time, students can be working in as many as 35 different states and 33 foreign countries.

Northeastern On-Demand consists of a Xythos Software Web-based document repository integrated with desktop virtualization products that let the school provide students and faculty with secure access to documents and their desktop applications from home, a work site or even from a local Starbucks.

"With Northeastern On-Demand, no matter where you are or whatever device you're on, you can continue to work as if you were at your desk here at the university," says Richard Mickool, executive director and CTO of information services. "That's the reality of our environment. Research, collaboration and learning doesn't just happen between 8 a.m. and 4 p.m. on this campus. It's a 24/7 thing, and the network facilitates that."

That provides the school with an edge. "Are people coming to Northeastern because we've got the pull of this new environment? Doubtful," Mickool says. "But people come because of the educational experience, which, if you start to peel away the onion, includes some of the technology environment and the information access they have. They can still have a rich, learning, collaborative, productive environment no matter where they are, and that's important."

Security matters

Networks matter so much, in fact, that a corollary to Metcalfe's Law is in order: As reach increases the value of networks, security exposures grow exponentially because disruption of any one node potentially can disrupt all the others.

In addition, the costs of getting security wrong are staggering. On average, every customer record lost or stolen costs $150, according to experts. So, when the loss involves millions of records — 94 million in the case of TJX, the most prominent recent victim — the math is pretty straightforward.

Every company should know, therefore, that security really matters, but many still don't get it. Sadly, few companies encrypt data on laptops, even though on average companies lose 4% to 5% of their laptops each year. "A lot of them say it's too hard, they don't know how to manage the keys and they aren't willing to encrypt until they have the absolute perfect solution," says Joel Snyder, senior partner at consultancy OpusOne. That's a recipe for disaster, as TJX and Visa discovered.

Good security needs to be proactive, experts say. "When I talk about securing networks, I tell people, 'Don't let yourself be BlackBerried,'" Snyder says. Many enterprises were surprised by the infiltration of wireless BlackBerries, then had to cobble together ways to support them. "The IT guys were not out ahead of the curve, trying to ready these services before the executives asked for them. IT security guys need to get ahead of the parade, not rush to catch up to it," he says.

The AHA's Hinkle says people resist including security in the beginning of a project because they think it will slow down the process, when the reverse is true. "At the end is when the feet-dragging on security happens, and there isn't any buy-in. People need to integrate security and network design upfront."

Technology advances matter

Security is a moving target, but fortunately, new security tools are emerging as fast as new threats. It is one sector — but not the only one — where keeping up with technology advances is critical. Most companies don't want to be on the bleeding edge, but they can't afford to lag too far behind because advances can change the game. Technology advances matter.

Consider the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF). One of the first things ATF agents do when they reach a crime scene is set up a field office with links to headquarters in Washington, D.C., says William (Larry) Bell, deputy CIO. The phone company used to require 24 hours or more to install the connections, he says. Many agents would resort to satellite phones in the interim. "Satellite phones are fine for voice, but we also wanted to push data, pictures and video, so we needed broadband."

The ATF turned to a wireless service from iPass. Field agents are given wireless access cards for their laptops that, when activated, search the area for available wireless networks, including Wi-Fi hot spots and a range of wireless WAN services. "They find potential connections and automatically connect to the strongest one, and the agents don't have to do anything," Bell says. Now field agents can set up broadband collaborative links immediately, anytime, anywhere.

GIACOMO MARCHESI

The success stories associated with innovative uses of new technologies abound, with companies realizing business gains using everything from RFID to service-oriented architecture (SOA) and CRM. To be sure, nearly an equal number of horror stories can be found, too. These tell the tales of technology projects that went wrong or never lived up to expectations.

"With new technologies, we have to make sure we're integrating them into the way we manage IT already," the CISR's Westerman says. "If the technology becomes a bolt-on that takes us in the direction of more complexity, then it's going to hurt us. Does the technology take us to the point where we actually have better-structured IT assets? To the extent that something like SOA can do that, that's great. To the extent that SOA becomes something we do separately in addition to everything else we've been doing, then it's not."

The key is that adoption of new technology must be spurred by the business, not the other way around, the AHA's Hinkle says. "It's not me saying we need to do WAN acceleration; it's the business managers saying they need these Web applications to work better, or they want to stream audio and video."

Consumers really matter

The rise of popular consumer technologies has made keeping up with technology advances harder. More than any other time in networking, consumers matter. Not only have they been at the forefront of recent technology advances — the highest-performance wireless LAN products, for example, are emerging in the consumer market before the enterprise — but they also have access to a far greater set of network-intensive tools than they ever have before. And that makes supporting enterprise users that much more difficult.

"There are consistently rising expectations now," Northeastern's Mickool says. "When people can go to Best Buy and get the latest wireless device, they immediately start to say, 'If I can do this at home, why can't I be doing this at school or work?'"

Mickool says he spends much of his time trying to mimic the consumer experience so his users have familiar tools. These rising expectations were another catalyst for the school's On-Demand initiative. "Our users find value in these technologies, be it wireless, social networks or what have you, so it becomes our goal to provide a similar technology," he says. "With On-Demand, we took advantage of what's happening in the consumer world, what people have access to and what's going on with the Internet, and incorporated all that in a secure, reliable way into the enterprise."

Gone are the days when IT could dictate tool use. Today, the most successful, strategic businesses take into account consumer realities as they roll out enterprise applications. "I have this phrase I use with my staff: 'It's impossible to manage reality — we have to manage *to* reality.' We still have to make smart business decisions, but they have to start with the customer realities." If we don't, users will take it on themselves — install their own wireless access points, use unsecure collaboration tools, create their blogs — and open the company to unfathomable risk.

Sense of purpose

All these developments taken together have started to reinvigorate IT — in terms of self-worth and job and career security, and obviously that really matters.

Savvy IT staffers who know the 1s and 0s and also can architect business-changing applications are in hot demand. There just aren't enough people with the right mix of skills to fill the openings (see "Job skills that matter: Where you can leave a mark," page 38).

Michael Morris, technical team lead and network architect at a $3 billion high-tech company, has seen these changes firsthand and is working with Cisco to build a new certification that goes beyond the traditional Cisco Certified Internetwork Expert (CCIE). "The CCIE in networking is the Holy Grail, but you come to find out that as networks mature and get bigger and you start dealing with virtualization, MPLS and so on, the CCIE barely scratches the surface," he says. "CCIE teaches you how to configure Cisco routers really well, but it doesn't give you architectural presence. It doesn't help you understand the holistic view of networks and all the things that go into it. It doesn't teach you how to work with people and how to work with application teams and vendors. But that's what the industry needs now."

People with such architectural skills, coupled with good communications, organizational, leadership and motivational skill sets, are in the driver's seat, Morris says. "We were trying to hire someone with those skills ... in the Bay Area, and no one would come in for under $200,000, even for an interview," he says. "Over the next few years, as the level of expertise to do networks right increases, the pay is going to jump up even more."

Morris envisions such network architects being compensated more on par with directors and vice presidents, a large chunk of whose cash is bonus-based, paid when certain milestones are met. "Companies need to start looking at the really high-achieving individual IT contributors not as regular line-employees but as strategic assets. They will have to come up with new compensation models to entice those people."

The upshot? "IT matters, networking matters, information matters and people matter," Northeastern's Mickool says. "Our job is to come up with the right combination of these things to make them work and be successful. Today, IT is the enabler of the real business, and the real value."

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> "IT MATTERS, NETWORKING MATTERS, INFORMATION MATTERS AND PEOPLE MATTER. OUR JOB IS TO COME UP WITH THE RIGHT COMBINATION OF THESE THINGS TO MAKE THEM WORK AND BE SUCCESSFUL."

RICHARD MICKOOL

EXECUTIVE DIRECTOR AND CTO OF IS, NORTHEASTERN UNIVERSITY

STEVEN VOTE

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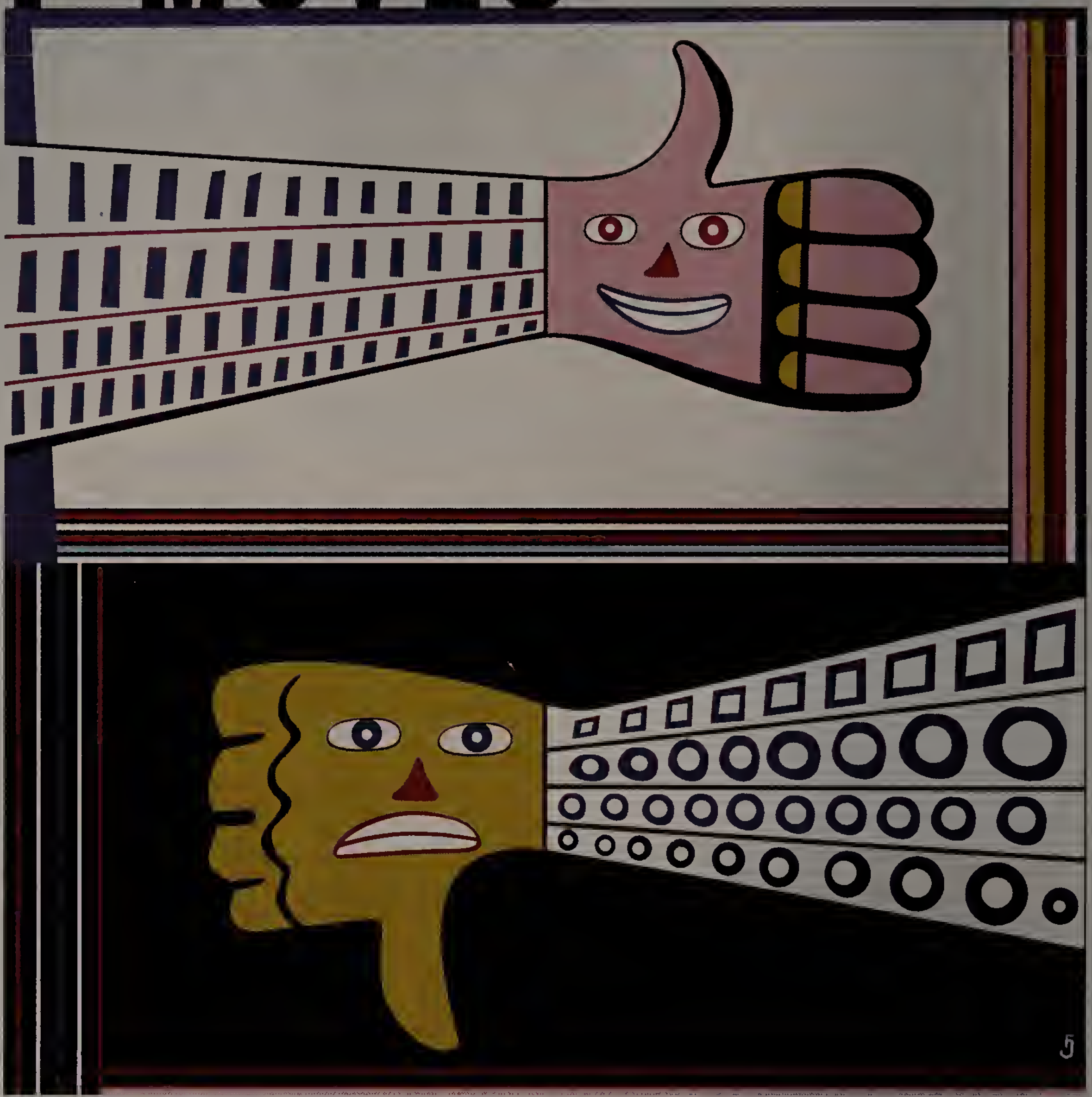
INDUSTRY MOVES

THAT MATTER — FOR GOOD AND BAD

Selected by readers, bloggers and others, here's what the industry did right and wrong in '07 and why the moves matter

BY JOANNE CUMMINGS



FEDERICO JORDAN

On balance, 2007 was a pretty good year for the network industry. Many companies hit their stride this year, finally shaking off the torpor of the dot-com bust.

"In technology, we go in cycles," says Josh Hinkle, manager of network management and security for the American Heart Association in Camp Hill, Pa. "And we're in one of those cycles again where we're ramping up. After the boom of the late '90s, we leveled off and people weren't hiring or paying as much, and there wasn't much innovative technology happening. But now, companies have decided they'll invest. So, everyone is starting to innovate with technology again."

Some of that worked, some of it didn't. Virtualization, collaboration, next-generation carrier networks and green network initiatives all landed on the "good" side of the good/bad ledger, for example. Less rosy were the contentious network-access-control initiative, the net neutrality brouhaha, the dubious focus on Internet properties, problems with the broadband marketplace and the large thud that was Vista. We take a look.

THE BRIGHT SIDE

1. Virtualization

Virtualization really became mainstream in 2007. In addition to the successful VMware IPO (see related story, page 16), which put virtualization on Wall Street's map, more enterprises began not only implementing virtualization, but also innovatively tailoring it to their businesses. "Adopting virtualization by far has been one of the better moves we had in 2007," Hinkle says. "Virtualization led us to look at WAN-optimization and data-shaping. And we realized we could get rid of services in remote areas that we don't want to support, and give people speedy access to our central location where they can reach not only their one server, but true enterprise applications. Virtualization is really making things happen here."

2. Collaboration

This year the industry got collaboration right, too — or, at least, new and emerging collaborative technologies, such as blogs and wikis, gained an enterprise toehold. Although the verdict is still out on the value of consumer-based social-networking sites (see related story, page 16), the collaborative tools they popularized are fast making inroads, and that's all good, experts say.

"Where I work, all documents are in wiki and SharePoint," says Michael Morris, a network architect and a Cisco Subnet blogger (see www.nwdocfinder.com/3028). "I'm a big fan of wiki because of its ease of use, its openness and its simplicity."

By embedding wikis and blogs in SharePoint 2007, Microsoft also helped get collaboration right, says Susan Hanley, an independent consultant and a Microsoft Subnet blogger (see www.nwdocfinder.com/3027). "Because [SharePoint 2007] makes it so easy to take advantage of emerging collaborative technologies, it gives enterprises an opportunity to start a dialogue with executives who may not have been exposed to wikis and blogs or who may not have been willing to try them. Now, it's so easy to do, it lets them see the value of using the technology," she says.

3. Next-generation networks

The industry, especially the carriers and equipment manufacturers, also got it right in 2007 when they began training their focus on building out true next-generation networks (NGN).

"For the first time, the industry began to look at what NGN really means and requires," says Thomas Nolle, president of CIMI Corp. and a *Network World* columnist (see www.nwdocfinder.com/3030). "Up until this year, probably 80% to 90% of the industry visualized the future as everything collapsing into the Internet, and that never had a shred of a chance of working. This year, the carriers have begun, through their RFP and RFI processes, to turn the software and equipment vendors in the direction that next-gen networks really require," including toward technologies such as hybrid IP, Ethernet and optical networks.

That leads to healthy spending. "That's why you see Cisco and Juniper doing so much better this year," Nolle says. "The carriers are providing the blueprint to follow, and that's a good move."

4. IPv6 gets taken seriously, in all the right places

The industry players that will be affected the earliest by an IP address shortage finally got IPv6 right in 2007. "This year, the companies that are dependent on a steady supply of IP addresses finally truly understand that they really are going to need IPv6," says Jeff Doyle, principal of Jeff Doyle and Associates and a *Network World* blogger (see www.nwdocfinder.com/3029). IPv4, as a resource pool, is going to run dry in the next couple of years, probably by 2010 to 2011, Doyle says. And although that doesn't mean much to enterprises yet, carriers looking to support thousands upon thousands of smart phones and other Internet gadgets will soon feel the sting. "[Internet Routing Registry] is starting to put out advisories . . . recommending IPv6, and people are finally listening," he says.

5. Going green

Finally, the industry got going in the right green direction in 2007.

"Vendors and enterprises are finally paying attention to energy consumption issues in IT and hopefully, [those who are] paying attention have done so before the problem spiraled completely out of control for them," says Andreas Antonopoulos, founding partner at Nemertes Research and a *Network World* columnist (see www.nwdocfinder.com/3031). "In general, green IT initiatives, such as The Green Grid, the efforts by chip manufacturers to reduce energy consumption, and the [U.S. Environmental Protection Agency's] Energy Star initiatives are all good moves." What's new in 2007 is that the industry is finally realizing green initiatives are not only good for the planet, they're good for business.

"This is not people hugging their blade servers — it's purely profit-driven," Antonopoulos says. "We can't afford to do this the old way."

THE FLIP SIDE

1. Network access control

Rather than rallying around a single NAC standard, the industry fragmented its support. "The industry really screwed up there," says Joel Snyder, senior partner at OpusOne and a *Network World* software tester (see www.nwdocfinder.com/3032). "This was the time when it could have done the right thing, and it didn't."

Instead, Cisco refused to participate in the Trusted Computing Group (TCG) initiative, leading the IETF to charter a working group for Cisco. All is not lost, however. "The good thing here is that Microsoft and the TCG are joining forces," Snyder says. "That reduced a lot of uncertainty for people who want to go forward and be compatible with Vista, which is obviously the most important thing for NAC in the next five years. This is one of the few cases in memory where Microsoft is the good guy and Cisco is the bad guy."

2. Net neutrality

This year, the industry really got it wrong on net neutrality. "The carriers made net neutrality an issue again, by doing pigheaded censorship and creating a storm of opposition, when the issue had just died down," Nemertes' Antonopoulos says. "This was a trifecta of AT&T censoring Pearl Jam, Verizon censoring a prochoice political committee, and Comcast messing with BitTorrent and Lotus Notes traffic. Net neutrality had gone out of conversation until they started doing stupid things."

The real issue isn't about charging more for better tiers of service, Antonopoulos says. "The carriers are not just saying if you use too much traffic you'll be off, and of course, 'too much' is never defined. But they're looking at specific applications, content and destinations — that's the issue with 'Net neutrality."

3. The next bubble

Another area where the industry seems to be getting it wrong is in Internet "advertising," CIMI's Nolle says, likening this activity to the dot-com craziness. This Internet advertising phenomenon shows itself in two ways. First, companies of all sorts are scrambling to place ads on social networking sites. Second, industry veterans are aligning themselves with the sites — think of Microsoft's stake in Facebook, for example. The focus on this type of advertising is just "plain wrong," Nolle says. "The truth is we don't have any good idea about how Internet ads could become a replacement for television ads or anything like that — the statistics on advertising effectiveness are not much better than Ouija boards or Magic 8-Balls. There has never been since the bubble so much M&A and so much venture investment made on such nonsensical numbers as we've seen here."

Carriers and cable companies aren't as exciting as start-ups and the Facebooks and the MySpaces that are banking on this influx of cash from Internet advertising, Nolle says. The carriers, however, are the ones who are "quietly building their incumbency market positions," he says. "The rest of the market — the start-ups and innovators that we hear about — is building stuff that will never be useful. Just like the bubble. And the common carriers will win because they didn't get trapped up in this mythology that caught everyone else."

4. Broadband

A recent study by the Organization for Economic Cooperation and Development (OECD) ranks the United States at No. 15 out of 30 member nations in per-capita broadband use, well behind most other developed countries. "The United States continues to lag [behind] industrial countries in broadband speed, quality and availability, and we're falling further behind so the distance has become greater," Antonopoulos says. "That's definitely wrong." He blames the carriers and the U.S. Federal Communications Commission.

> "Adopting virtualization by far has been one of the better moves we had in 2007... . [It] is really making things happen here."

JOSH HINKLE **MANAGER OF NETWORK MANAGEMENT AND SECURITY, AMERICAN HEART ASSOCIATION**

"Neither the FCC nor the carriers have fulfilled the promises of the Telecommunications Act of 1996, which gave the carriers huge subsidies for what they promised would be lightning-fast, widely available fiber-based broadband. The carriers haven't delivered on the promise, nor has the FCC done anything about it," he says. The FCC's recent franchise ruling "is too little, too late," he adds (see related story, below).

5. Vista

As with most things Microsoft, Vista debuted with much noise and fanfare, but it's been eerily quiet since. "Most enterprises have been underwhelmed and with good reason," Antonopoulos says. "Its main features cater to fixing mistakes of the past and eye candy."

Microsoft made a wrong move here, and now it's opened up the playing field to the point where enterprises have to make a deliberate choice on the desktop operating system, which can be a good thing and a bad thing. It requires more evaluation time, but opens up the competition. "The pain of the upgrade to Vista can now be comparable to switching to Linux or even Macintosh, so Microsoft has erased the advantages it built up. You go from an environment in which Microsoft has pretty much been the only desktop [operating system] vendor for the enterprise to suddenly having three choices [Mac, Linux desktop and Vista], and all three need to be taken seriously."

Cummings is a freelance writer in North Andover, Mass. She can be reached at jocummings@comcast.net.

THE SMARTEST AND DUMBEST
MOVES OF 2007 — AND WHY THEY MATTER

VMware's IPO was one smart move, while company use of ghost-bloggers, pretty darn dumb. See what else readers, bloggers and others picked for this list

Smartest

1. Google's OpenSocial API and Android phone operating system. "Google has become one of the companies people look to to determine where the industry is headed. It is a force," says Josh Hinkle, manager of network management and security for the American Heart Association in Camp Hill, Pa. "Like with Android, everyone anticipated Google coming out with its own GPhone, and it basically did the opposite. It went open source and is working with all these partners."

Thomas Nolle, president of CIMI Corp. and a *Network World* columnist (see www.nwdocfinder.com/3030) agrees, pointing to the OpenSocial API as a smart move. "It was clever. By opening up the API, it is going to be able to build a market."

2. VMware IPO. "VMware has just been smart and right on target time after time," says Joel Snyder, senior partner at OpusOne and a *Network World* tester (see www.nwdocfinder.com/3032). "From a financial standpoint, it was really smart of EMC to spin it out and get all that cash. I'm sure the EMC CFO is getting a nice bonus at the end of the year and some high-fives from shareholders."

3. SCO slap-down. "The judge slapping down SCO in the SCO vs. IBM/Novell lawsuit was the smartest move," says Andreas Antonopoulos, founding partner at Nemertes Research and a *Network World* columnist (see www.nwdocfinder.com/3031). "It was a completely frivolous lawsuit by SCO against Linux when it sued IBM and Novell for intellectual-property infringement and then failed to prove it. It was great that it got dismissed."

4. FCC's franchise order. "The smartest move was the Federal Communication Commission's franchise order, when it said the franchise law the cable companies had used to protect their incumbency in video is anticonsumer and anticompetitive," Nolle says. "The whole idea of IPTV and telco video would not have happened if that process had not gone forward."

5. Cisco's move into software with the WebEx acquisition. "That's smart because software lets the company add differentiable features to its products, and it's getting a better level of strategic engagement with the customer," Nolle says. **(See "Three IT deals that matter," page 26.)**

Dumbest

1. Funding of social networks. "No one has ever really done a study on the effectiveness of social network sites," Nolle says. "Where is the return going to come from? What are we doing?" Snyder agrees. "One of the stupidest moves is Microsoft investing in Facebook," he says. "Social-networking sites are extremely trendy and there is no reason why there won't be another company coming up in a few weeks that everyone will abandon Facebook for. It's just a trend, as opposed to this being a fundamentally great product."

2. Comcast vs. the Bible. An Associated Press test in which researchers tried to download the Bible via BitTorrent proved Comcast was blocking BitTorrent content, whether it was copyrighted or not. "It was a beautiful bit of PR on the AP researchers' side," Antonopoulos says. "And messing with the protocol in the way Comcast did with forged TCP packets was a dumb move, especially when the net neutrality issue is dying down."

3. Apple's iPhone pricing adjustment. "Hands-down the dumbest move of the year," Hinkle says. "When it dropped the price [from $599 to $399], it didn't take care of early adopters and just gave them a gift card to the Apple store. ... [That's] a Microsoft move."

4. Failing to encrypt data on laptops. After high-profile cases, such as those at the TJX Companies and the U.S. Department of Veterans Affairs, eschewing encryption is the height of idiocy. "Any company that's not doing that gets a bid for stupidest company of the year," Snyder says.

5. Ghost-bloggers. "Companies that post blogs that marketing communications writes under the guise of the CEO are stupid," says Sue Hanley, an independent consultant and a Microsoft Subnet blogger (see www.nwdocfinder.com/3027). "There's no excuse for that"

— Joanne Cummings

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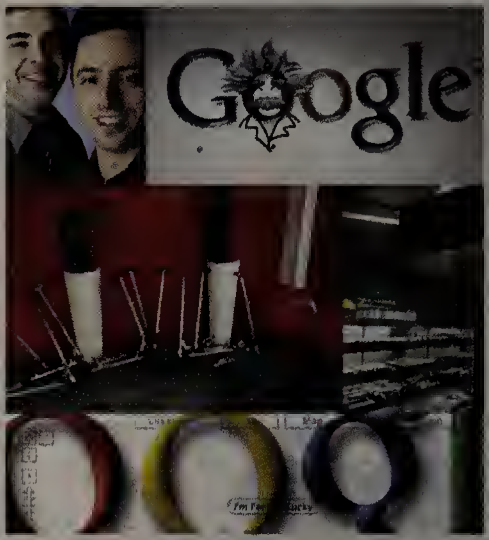
PEOPLES, PLACES AND THINGS THAT MATTER MOST

For their ability to draw your attention, these 10 people, places and things stand out as newsmakers that matter

BY ANN BEDNARZ

What makes a top newsmaker? Sometimes a company generates lots of buzz by doing particularly innovative things, or someone with a catalyzing personality gains notoriety. Other times, a hot new product or a spectacular disaster gets the attention of the masses. The subjects readers made popular over the past year are all of these things and more. Sometimes lauded for technology vision, scorned for lapses in judgment, and loved or hated for setting a new standard in the industry, these are the 10 biggest newsmakers of 2007 — and why they matter.

1. THE GOOGLEPLEX



"Search engine giant" once summed up Google's business pretty well, but those words now seem woefully inadequate to describe the company that in 2007 delivered a hosted software suite for enterprise users, conceived a mobile application platform that is device- and operator-agnostic, made plans to bid for wireless spectrum, and forayed into the TV ad-serving world.

One thing Google didn't do was deliver GPhone, a mobile phone the company was widely rumored to have had under development. Instead, it unveiled the open mobile-development platform, called Android. In doing so, it really shook up the telecommunications industry, where closed platforms and operator lock-in are the norm, not broad alliances and a $10 million bounty for the best mobile applications.

Meanwhile, Google continued to add firepower to its advertising empire, putting up $3.1 billion to acquire ad-management player DoubleClick.

With all this action, it's little wonder that Google receives 1,300 résumés every day. Who wouldn't want to work in its Mountain View, Calif., corporate campus — the famed "Googleplex" — where employees enjoy 11 free cafeterias, on-site car washes, salon, gym, language classes, laundry facilities and more?

2. STEVE BALLMER, THE VOICE OF MICROSOFT

Steve Ballmer didn't disappoint folks hoping to hear inflammatory statements and corporate bravado from Microsoft's CEO in 2007. He angered the open source community by saying Red Hat Linux uses intellectual property owned by Microsoft and that Red Hat's customers should pay Microsoft for it. He dissed the iPhone, saying it would never grab significant market share, and belittled the significance of Google's Android mobile-application development platform, suggesting it was no more than a press release.

In between the snipes, Ballmer had plenty of Microsoft products to talk about, starting with the consumer release of Vista and Office 2007 in January. The year also saw the release of Office Communications Server — Microsoft's VoIP play — along with two enterprise search products, a virtual machine management tool and an unexpected stand-alone hypervisor called Hyper-V Server.

What didn't make store shelves is Longhorn. After Microsoft shipped the first public Longhorn beta in the spring, it pushed back the final release, christened Windows Server 2008, to next year.

On the acquisition front, Microsoft made its most expensive purchase ever, spending $6 billion for online advertising platform aQuantive in a move that Ballmer said represents "the next step in the evolution of our ad network."

3. VONAGE GOES TO COURT — AGAIN

What was 2007 like for Vonage? In a word: litigious. Patent lawsuits from Verizon, Sprint Nextel, AT&T and, in late December, Nortel, kept the Internet phone provider in the headlines and threatened to end its business. One particularly low point came in April just after a federal jury found that Vonage infringed on three Verizon patents related to transferring voice calls from an IP network to a traditional telephone network. After the ruling, a U.S. district court judge barred Vonage from signing up new customers — which could have spelled death for the company had it not fought successfully for a permanent stay from the injunction.

In the end, Vonage managed to reach settlements with Verizon, Sprint Nextel and AT&T, but not before Michael Snyder resigned as CEO and founder Jeffrey Citron took over the role. In terms of IOUs, Vonage is paying $120 million to settle its dispute with Verizon. It reached an $80 million licensing agreement with Sprint, and inked a tentative agreement with AT&T whereby it will pay $39 million in exchange for AT&T dropping its suit.

The numbers aren't all bad for Vonage. It managed to increase revenue to $210.5 million in its most recent quarter, a gain of 30% over the same quarter the previous year. Not bad for a company that very well could have slipped under for good.

4. STORM WORM: MALWARE AT ITS WORST

What's insidious, organized and retaliatory? The future of malware.

In the early days of 2007, a network attack began infecting computers using news of a deadly storm to lure victims into opening an e-mail carrying the subject line "230 dead as storm batters Europe" and a Trojan payload. Nearly a year later, the so-called Storm Worm and its variants have used the infected computers to create a massive botnet, which some say could be 1 million to 50 million computers strong and available for lease to those looking to launch spam and distributed denial-of-service (DoS) attacks.

While it has been around for nearly a year, antivirus vendors and crime fighters haven't been able to quell the Storm. What makes it so hard to take down is its constitution. Storm Worm has a distributed structure, so there's no central control point that could take out the network, and it continually changes the way the code is written and distributed. It's also aggressive, striking back at those who seek to destroy it. According to security pros, Storm Worm can figure out which users are trying to probe its command-and-control servers, and it retaliates by launching distributed DoS attacks against them.

Security guru Bruce Schneier recently blogged about what Storm Worm's architects might have planned now that they've amassed such strength: "Storm is being partitioned, presumably so parts can be sold off. If that's true, we should expect more malicious activity out of Storm in the future; anyone buying a botnet will want to use it."

5. IPHONE MANIA

You may not want one, or want to support as a corporate device, but you can't deny the buzz that is the iPhone. It hasn't let up since Apple announced the long-awaited device at Macworld 2007 in January. Early reviews lamented the iPhone's lack of such features as multimedia messaging and 3G compatibility, but that didn't stop buyers. Nor did Apple's deal with AT&T stop hackers from immediately racing to unlock iPhones so they could be used on other carriers' networks and run unauthorized applications.

Among the *Network World* crowd, the iPhone also created a mystery that had readers buzzing about what might have caused a few iPhones to wreak havoc on the Duke University wireless LAN. The problem at Duke wound up being a Cisco issue, not an iPhone one, but that's not to say enterprise IT teams should stop worrying about iPhones on their corporate networks. Just last month analyst firm Gartner warned that the iPhone doesn't meet enterprise security policy requirements. No doubt it's not the last we'll hear about the iPhone's enterprise mettle. (For more on why the iPhone matters, see related story, page 33.)

6. TJX DATA DEBACLE

It's exactly the kind of notoriety a company doesn't want. Bad news on top of bad news fueled yearlong interest in the TJX Companies' data heist, which is thought to be the largest breach of consumer data on record.

TJX first reported in January that intruders gained access to its systems. Throughout the year it amended the number of accounts exposed and when the intrusions took place. Most recently, court filings in a case brought by banks against TJX stated the number of accounts affected by the thefts topped 94 million.

The retailer's financial toll continues to climb as well. In November, TJX hiked its estimate of pretax charges for the data breach to $216 million, up from the $168 million it projected in August.

For the IT set, the data heist and its continuing fallout were a yearlong, not-so-subtle reminder of how precious data security is.

7. MICROSOFT DESKTOP CHALLENGERS

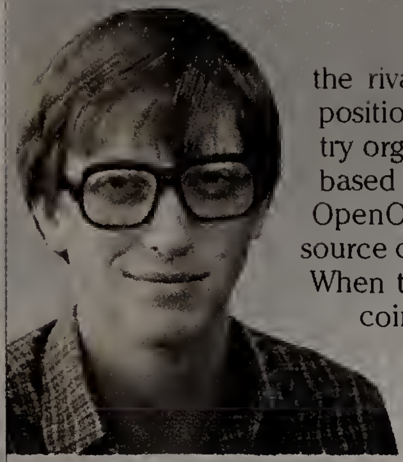
A legitimate alternative to Microsoft Office? Sure, that's been attempted before, but 2007 saw a series of events that combined to make the idea of running an enterprise environment without Office more tempting than ever.

Most significantly, the ISO rejected Microsoft's Open XML file format as a technology standard. This snub gave suites built around

Hot buttons that matter for 2008

These three subjects matter enough to keep us wanting to hear more about them

- **Municipal Wi-Fi success stories.** It seems the latest stories about municipal Wi-Fi projects are all negative: Philadelphia, San Francisco, Chicago and Houston are among cities struggling to deliver citywide wireless Internet services amid political infighting. It's time for some success stories. www.nwdocfinder.com/3041
- **Mobile data security.** About 60% of IT security practitioners lack the resources to implement proper policies and put controls on off-network devices, according to a recent survey by Ponemon Institute. Enterprises need to get better about protecting data on electronic devices that leave the network — and fast. www.nwdocfinder.com/3042
- **Apple in the enterprise.** Leopard, Apple's new operating system for servers and desktops, has been generating a lot of buzz. Now it's go time: Will enterprises adopt the 10.5 release of OS X? www.nwdocfinder.com/3043



the rival Open Document Format a prime position with government and private industry organizations required to use standards-based file formats. That's good news for OpenOffice.org, the Sun-founded open source community.

When the ISO rejected Open XML, IBM not coincidentally took a greater interest in OpenOffice.org, joining the group and pledging to contribute code to the project. Shortly afterward, IBM released Lotus Symphony, a set of productivity applications based on the OpenOffice.org source code.

Meanwhile, Google has been fleshing out its Microsoft Office alternatives. Early in 2007 it released Google Apps Premier Edition, a Web-based suite that includes Google Docs & Spreadsheets, Gmail, Google Calendar and Google Talk. Start-ups, such as Zoho and InstaColl, also are jockeying to deliver free, open source and hosted tool sets that combine collaboration features with productivity applications.

8. INSIDE MIT'S NETWORK

Insight from peers can be invaluable to IT executives, and perhaps that's why our interview with Jeff Schiller, head of computer networks and security at Massachusetts Institute of Technology, was such a massive hit with readers.

Schiller gave *Network World* an inside look at how MIT was fending off hackers, executing its massive VoIP rollout and launching its foray as a regional fiber-optic network operator. He opened up about such issues as wireless technology, wiretapping laws, intercity fiber and staff training.

Asked about the challenge of enforcing security standards among MIT's departments and network users, Schiller quipped, "Enforce is not a word you can use at MIT. We try to entice people to do the right thing."

9. NETWORX: NO BIGGER TELECOM PROGRAM IN THE WORLD

After years of planning, the federal government in 2007 doled out awards for its monster telecommunications contract, Networx. All the top-tier U.S. carriers — AT&T, Qwest Communications, Sprint Nextel and Verizon Business — bid on the 10-year, $20 billion telecom services deal, which will provide domestic and international voice, data, video and wireless services to all federal agencies.

When the biggest component of Networx — called Networx Universal — was awarded in late March, only Sprint walked away empty-handed. AT&T, Qwest and Verizon Business each won awards for Networx Universal, which provides 50 legacy and leading-edge services, including frame relay, ATM, VPNs and VoIP.

Two months later, AT&T, Level 3 Communications, Qwest, Sprint Nextel and Verizon Business were awarded contracts for the Networx Enterprise component, which will provide secure, managed and wireless IP services nationwide to federal agencies.

10. DAYLIGHT SAVING EQUALS PATCH-MANAGEMENT ANNOYANCE

IT managers get plenty of headaches already, but 2007 caused a few more because of daylight-saving changes.

For more than two decades, daylight saving time began on the first Sunday of April and ended on the last Sunday in October, with clocks reverting to standard time. Beginning in 2007, however, because of the Energy Policy Act of 2005, daylight saving time began on the second Sunday in March and ended on the first Sunday in November.

Preparing for the switch meant companies had to put together testing and patch-management plans — or risk disrupting time-sensitive business applications and operating system operations.

Reader interest in stories about what the changes meant, and how to prepare for them, peaked early in the year as the "spring forward" date approached, and then again as the time to "fall back" drew near.

Disappearing acts for 2008

These five topics might still matter, but we'd like to hear less about them in the new year

- **Things catching on fire.** Flaming cell phones, combustible laptop batteries and fiber installations gone wrong were everywhere in the news in 2007. Enough already! www.nwdocfinder.com/3044

- **Data breaches.** The Privacy Rights Clearinghouse, a consumer advocacy group, has kept a running tally of the number of records containing sensitive personal information involved in security breaches in the United States since January 2005. As of early December, a whopping 216 million records have been compromised. www.nwdocfinder.com/3045

- **The SCO Group.** The company lost a key court-ruling in its lawsuit against Novell, filed for Chapter 11 bankruptcy protection, and reported weak quarterly results within the last few months alone. Are we done yet? www.nwdocfinder.com/3046

- **Patent prospectors.** Patent holding company NTP in September filed lawsuits against Verizon, AT&T, Sprint Nextel and T-Mobile USA for infringing on several of its patents related to the delivery of e-mail to mobile devices. NTP's similar, four-year-old patent suit against BlackBerry-maker Research In Motion in 2006 netted a settlement of $612.5 million — so it seems unlikely this round of NTP suits will go away. Can't hurt to hope, though. www.nwdocfinder.com/3047

- **Corporate malfeasance.** Former Qwest CEO Joseph Nacchio was convicted of insider trading in April, and in July was ordered to pay $52 million and spend six years in prison. Ex-CA CEO Sanjay Kumar, meanwhile, reported to federal prison in August to begin serving his 12-year term for accounting fraud. Kumar also was ordered to pay more than $1 billion in restitution to victims of securities fraud. Five years after the passage of the Sarbanes-Oxley Act, let's hope the trail of technology vendor convicts is waning. www.nwdocfinder.com/3048 and /3049

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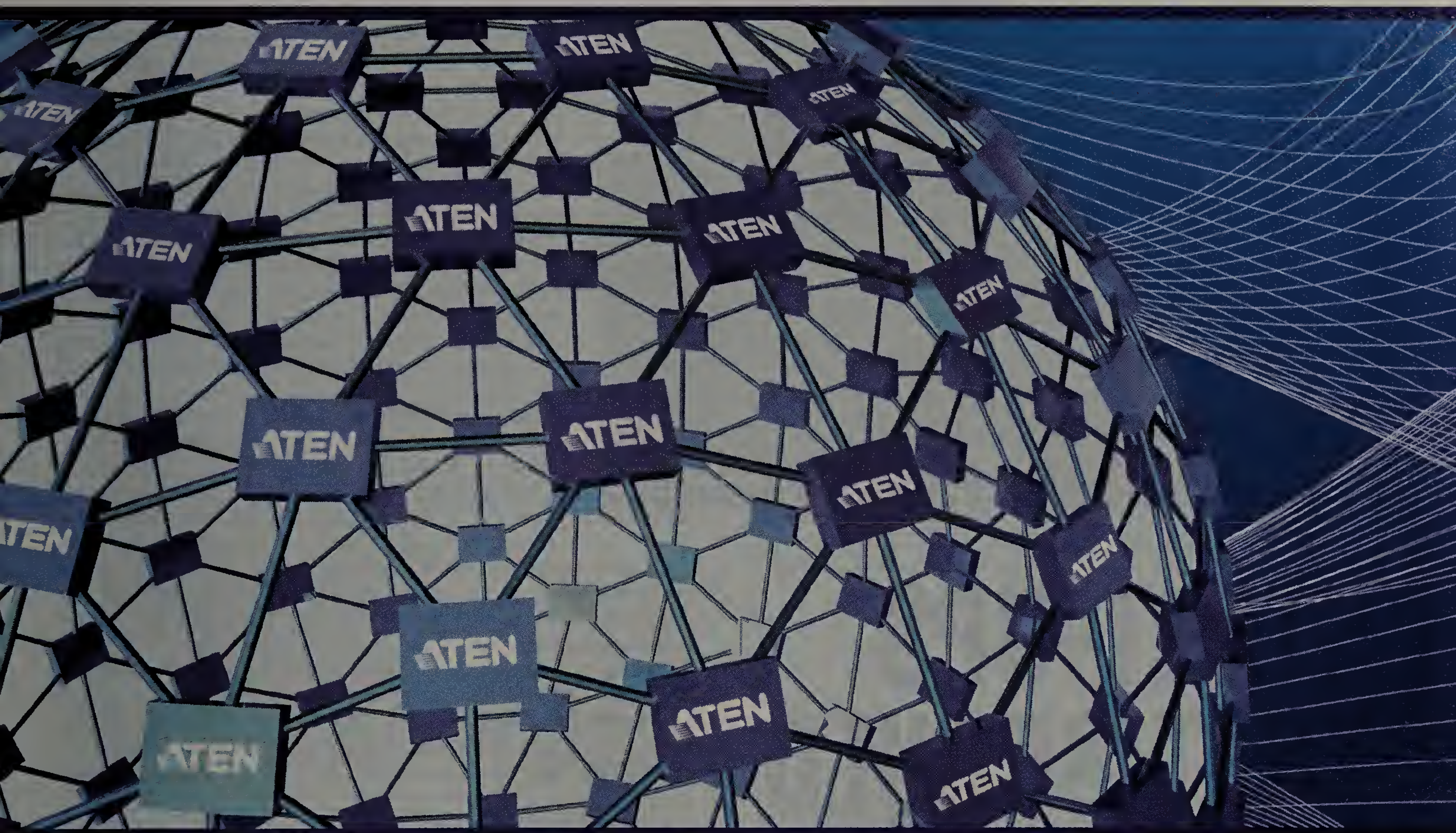

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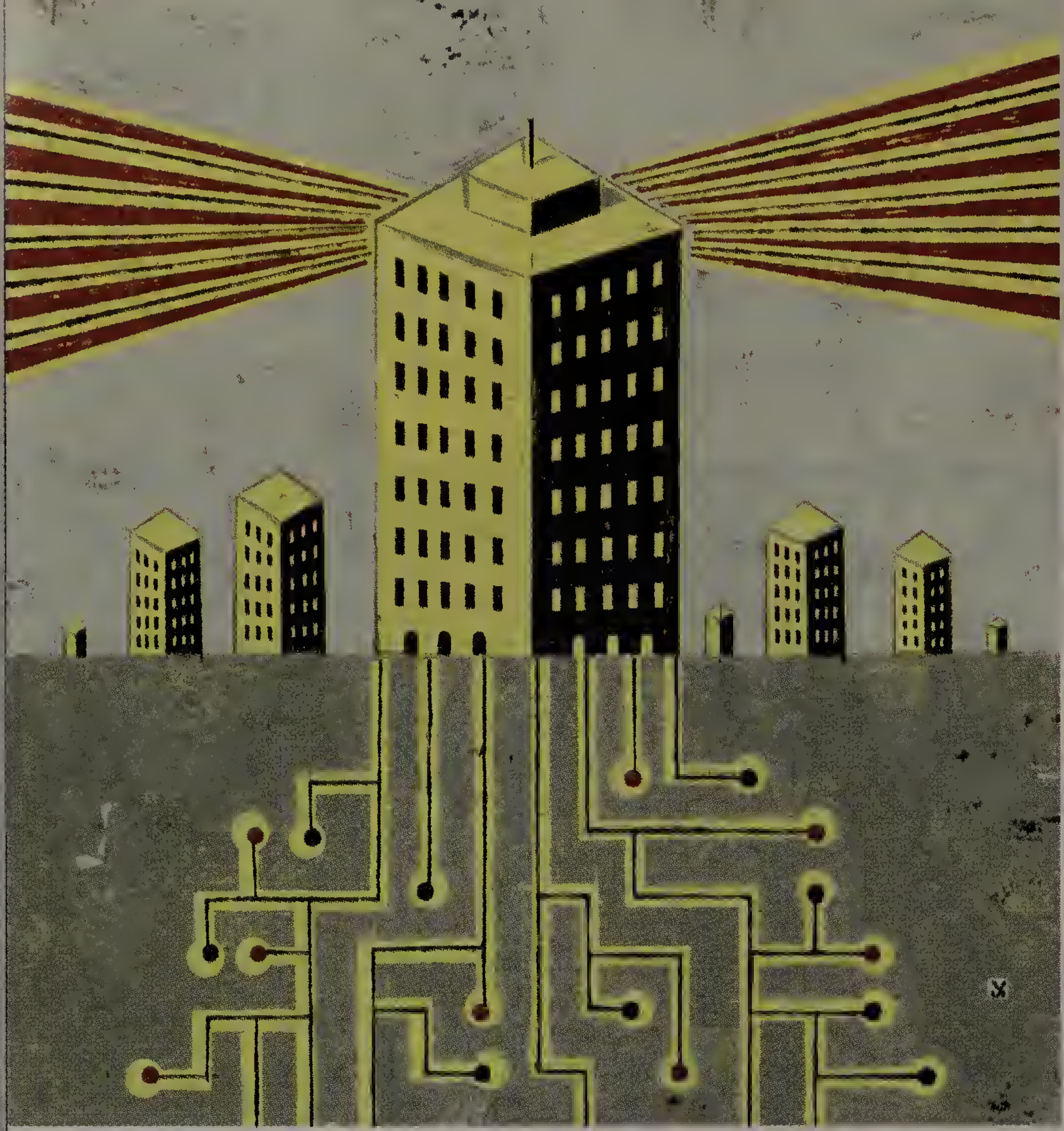

BRAD YEO

START-UPS THAT SHOULD MATTER

In 2007 we designated more than 90 start-ups as worth watching. After a second look, we picked these 10 as offering what matters most in the enterprise — agility, seamless integration and pervasive connectivity

BY JULIE BORT

3LEAF SYSTEMS www.3leafsystems.com

Founded: June 2004

Headquarters: Santa Clara, Calif.

What it offers: The V-8000 Virtual I/O server, an appliance that converts individual storage and network interfaces from commodity x86 Windows and Linux servers into a single pool, operating on a 10G fabric.

Why we like it: The appliance makes virtual resources appear to servers as if they are locally attached, with full administrative support for network multipathing, port bonding and trunking. The appliance solves the I/O bottlenecks that occur as enterprises add more virtualized servers. "It's definitely a problem to scale up lots of virtual machines on a cluster and not be able to scale up the I/O at the same time. 3Leaf is addressing this," said John Abbott, chief analyst at The 451 Group in our original profile of the company (see www.nwdocfinder.com/2851).

Since then, 3Leaf has made solid progress. It signed on a new CEO, B.V. Jagadeesh, founder of Exodus Communications and former CEO of NetScaler. It joined the VMware Community Source program. It launched provisioning software for its V-8000 Virtual I/O device, and was named to a few more "best" lists like this one.

How it got its start: 3Leaf was founded to solve such problems as the low reliability and resiliency of I/O spawned by virtualization.

Management: Co-founder Bob Quinn, who moved from CEO to CTO and chairman with Jagadeesh's arrival, founded and held executive positions with Network Virtual Systems and iMODL. Other co-founders include Scott Lurndal, who previously founded XML PKI company NanoBiz (acquired by VeriSign) and Isam Akkawi, who held technical positions at Unisys, Nvidia and others.

Funding: $32.5 million in two rounds, from Alloy Ventures, Enterprise Partners, Intel Capital and Storm Ventures.

Who uses the product: Savvis, as well as several financial institutions and a number of Fortune 100 companies.

Interesting fact: John Kelley, former McData CEO, is on the board.

APATAR www.apatar.com

Founded: February 2007

Headquarters: Chicopee, Mass.

What it offers: Apatar open source software that lets customers integrate information from in-house applications, external data sources and applications hosted on the Web.

Why we like it: The Apatar tools help applications share data easily without programming. By creating a single data stream out of multiple back-end sources, Apatar also can eliminate the storing of duplicate data. Since we first profiled Apatar in April (see www.nwdocfinder.com/2852), the company has been acquiring customers steadily and gaining attention for its tools, particularly for legacy CRM and ERP applications. In November the tools became available on Salesforce.com's AppExchange directory, and the company joined the MySQL Enterprise Connection Alliance, a third-party partnership for the popular open source database. Apatar's tools have been likened to Yahoo Pipes for the enterprise — they use a visual interface that lets users drag and drop to build an application, no coding required.

How it got its start: CEO Renat Khasanshyn previously headed Altoros Systems, a distributed product-life-cycle management company that ran data integration projects for customers that needed to meld databases and applications but couldn't pay the steep price of tools offered from such vendors as IBM and Informatica. Altoros mostly hand-coded each project, which was time-consuming and vulnerable to errors, Khasanshyn says. He set out to create an open source data-integration tool that put the kibosh on manual coding.

Management: Khasanshyn, who emigrated to the United States from Russia in 2001, previously had been vice president of engineering at PriMed, a discount insurance company in Tampa, Fla.

Funding: $500,000 from Altoros, Khasanshyn and co-founder Andrei Yurkevich.

Who uses the product: More than 400 users, including Allianz, Alcatel-Lucent, Amgen, Autodesk, Credit Suisse, University of Massachusetts and WellCare.

Interesting fact: Like Khasanshyn, other company founders and senior managers are Russian.

ATTUNE SYSTEMS www.attunesystems.com

Founded: December 2003

Headquarters: Santa Clara, Calif.

What it offers: The Maestro File Manager family of appliances, which virtualize file-level storage, particularly for unstructured data housed in files created by Microsoft products. The appliances discover the files and handle nondisruptive data migration, server retirement, data consolidation, tiering and global namespace across Windows file servers and network-attached storage.

Why we like it: These appliances eliminate the hours IT managers can spend working out how to locate and archive critical files; it also helps identify file owners, among other nifty management features. "Basically, it virtualizes the file server to the user," said Zak Khalil, MIS manager at Lessard Group, an architecture firm in Vienna, Va., in our original profile (see www.nwdocfinder.com/2853). "It runs with any existing storage. . . . It's very easy to implement, and it works."

Since our profile in August, the company has been beefing up in all directions. It added a lower-cost member to its Maestro File Manager family. It has added new capabilities, such as a text-based interface, policy-based backup and forensic file-search. It also landed another enterprise customer, Nvidia.

How it got its start: Attune was founded with an intent to provide a better way of managing unstructured file data.

Management: CEO Alan Kessler held the same position at Intransa and previously was COO at Palm.

Funding: About $40 million from Alloy Ventures, GF Private Equity Group, Quicksilver Ventures, Rock Creek Capital, RWI Ventures, Shea Ventures and Shoreline Venture Management.

Who uses the product: Bluesocket, Central Florida YMCA, Granite Telecommunications, Insulet, Interwoven, Lessard Group, Nvidia, OceanAir, Temple Independent School District and others.

Interesting fact: In February, Attune scored a coup by hiring Thomas Wong as vice president of engineering. This NeoPath Networks co-founder has held jobs at Sun and Wang Laboratories, has 29 patents (granted and pending), and has authored an international standard on recordable CD file systems.

mVALENT www.mvalent.com

Founded: December 2002

Headquarters: Waltham, Mass.

What it offers: The Integrity software tool for capturing and mapping application infrastructure requirements. Integrity models how specific applications use Web, application and database servers. The captured information gives IT the data it needs to tweak the applications for hardware, or vice versa.

Why we like it: Configuration management is key for optimal performance. Automating the detection of changes while modeling the configuration necessary for an ideal application-state speeds the process of implementing new application environments. Since we profiled it in June (see www.nwdocfinder.com/2854), mValent has deepened its partnership with HP, announcing support for Opsware and HP Universal CMBD. The vendors will resell each others' products, and the integration of Integrity with HP's products means users can add application automation to HP network-, server- and storage-automation wares.

How it got its start: While working at Inktomi, Swapnil Shah, founder and chief strategy officer, saw the need to automate tasks associated with the application layer — to help IT staff stop spending so much time and money on maintaining the status quo and move their organizations ahead.

Management: Shah founded the company with James Tauber, known as one of the creators of XML. Tauber is chief scientist. Joe Forgione, president and CEO, was formerly a vice president for Novell and CEO of Eprise.

Funding: $20 million from Polaris Venture Partners, IDG Ventures and Charles River Ventures.

Who uses the product: Berlex, Circuit City Stores, National Grid, Pearson Education, Sandia National Laboratories and State Street Corp., among others.

Interesting fact: mValent was featured at Demo 2004, a *Network World* conference that showcases unique emerging technology.

NEWSTEP NETWORKS www.newstep.com

Founded: January 2003

Headquarters: Toronto

What it offers: The Converged Services Node and other products that perform fixed-mobile convergence (FMC). Comprising hardware and software, the company's systems offer a session-brokering function that lets a call on a single device (a cell phone, for example) be handed off to Wi-Fi, or vice versa. A call also can be transferred to a different device on a different network — for instance, linking traditional PBX calls to Wi-Fi handsets.

Why we like it: FMC lets companies treat mobile phones like PBX extensions. NewStep gear expands connections to IP phones, softphones and other handheld devices, as well as traditional phones, without requiring a forklift of current hardware. In addition, NewStep says it supports Microsoft Live Communications Server, which means it doesn't just route calls, but helps provide presence information for Microsoft Unified Communications shops. Since we first profiled the company in January (see www.nwdocfinder.com/2855), NewStep has been testing interoperability on a long list of technologies. These include tests of Code Division Multiple Access/Wi-Fi handsets with Kyocera Wireless, GSM/Wi-Fi handsets with Paragon Wireless, Linux handsets tests with E28, and dual- and multi-mode handsets with HelloSoft. It also has proved interoperability with Asterisk, Avaya and Cisco IP PBXs.

How it got its start: Founders spun the company out of Bell Canada to address the emerging market.

Management: The team includes CEO Neil Baimel, former CEO of Syndesis, and Lloyd Williams, vice president of engineering.

Funding: $27 million from Vengrowth Private Equity Partners, Newbury Ventures, BDC Venture Capital, B.E.S.T Fund and Bell Canada.

Who uses the product: Embarq, BT and Bell Canada, plus enterprise customers in Europe are in various testing phases.

Interesting fact: NewStep has filed for more than 16 patents for its Converged Services Node software.

PALO ALTO NETWORKS www.paloaltonetworks.com

Founded: June 2005

Headquarters: Alviso, Calif.

What it offers: A different kind of firewall. The PA-4000 Series network devices, introduced in June, use what the company calls an application-classification technology. This inspects about 450 applications traversing the PA-4000 hardware to apply security rules, regardless of port, protocol or SSL encryption.

Why we like it: The technology is interesting to enterprises frustrated with perimeter security. The PA-4000 works with traditional firewalls to enforce security rules to important applications. In addition, the founders have security- and network-industry pedigrees. CTO Nir Zuk worked on some of the earliest firewalls at Check Point Software and later founded OneSecure, which was acquired by NetScreen Technologies (now Juniper Networks). The company has continued to create market buzz since our October profile (see www.nwdocfinder.com/2856), and is being looked at by an increasing number of enterprise users. Here's one example of what's being said about it in the blogosphere: "Prediction: Fortinet will have SSL inspection on their FortiGate line of products within 12 months. Why? Because their new competition, Palo Alto Networks, has it and Fortinet will need to add it or get kicked to the curb," says Jon Robinson, security industry watcher, on his Jon's Network blog.

How it got its start: Over time, CTO Zuk observed that the relationship between ports and applications was diminishing, and he devised a method to look at the content itself through a new type of firewall he had invented.

Management: In addition to Zuk, co-founders include Dave Stevens and Rajiv Batra. Stevens was venture partner at Foundation Capital and previously CEO of Rhapsody Networks (acquired by Brocade). Batra was previously an executive at Peribit (acquired by Juniper), co-founder of VitalSigns Software and an executive at Bay Networks.

Funding: $28 million from Globespan Capital Partners, Greylock Partners and Sequoia Capital.

Who uses the product: Catholic Charities, Constellation Energy (a 2007 Enterprise All-Star Award winner, see www.nwdocfinder.com/2911), Mercy Hospital, the city of Seattle, the state of Pennsylvania, The Reserves Network, Nordson and others.

Interesting fact: Shlomo Kramer, one of the more famous founders of Check Point, and currently co-founder and CEO of start-up Imperva, is on Palo Alto's board of directors.

SCALENT SYSTEMS www.scalent.com

Founded: January 2003

Headquarters: Palo Alto, Calif.

What it offers: Scalent makes real-time data center management software, called Virtual Operating Environment (V/OE). The software adds a layer of virtualization above the hypervisor, or as the company calls it, a "preboot" environment. This enables it to do fancy management tricks, such as turn on the physical hardware; instantly move virtual machines between VMware ESX Servers, even on different LAN switches; or port applications back to a nonvirtualized state directly onto Windows, Linux and Solaris. It also works with AIX, Citrix Systems, Windows and Xen systems.

Why we like it: Scalent targets disaster recovery, high availability and virtual machine management. V/OE lets servers — even virtual ones — retain their physical connectivity information to control the hardware and ensure that when failovers or moves occur, applications have the right network address, storage access and other essentials. Scalent, profiled in August (see www.nwdocfinder.com/2912), has been hot over the past few months, signing on EMC, HP and Unisys as resellers. HP, for example, will resell V/OE to help its c-Class blade server systems recover quickly from operating system or application failures.

How it got its start: The founders noticed the problems caused by manually shifting machines, cables, and network- and storage-access architectures whenever testing, disaster recovery or other changes are made.

Management: Benjamin Linder, CEO, previously was with Openwave Systems and Oracle. Andy Laursen, senior vice president of product development, held executive positions at Phone.com and Oracle. Ali Zadeh, former COO of NeoPath Networks (now Cisco), joined as president in October.

Funding: $37 million in three rounds, from Credit Suisse, Hummer-Winblad, JK&B Capital and Pequot Ventures.

Who uses the product: Ameriquest (now CitiGroup), Blackboard, Carilion Health System and Wachovia, among others.

Interesting fact: Laursen, a co-founder, owns one of the largest private solar-panel arrays in the western United States.

SIPERA SYSTEMS www.sipera.com

Founded: November 2003

Headquarters: Richardson, Texas

What it offers: Internet Protocol Communications Security (IPCS) appliances, which provide VPN, firewall, intrusion-prevention, compliance and troubleshooting functions for VoIP and unified-communications networks and protocols, such as H.323, Session Initiation Protocol (SIP), Cisco's SCCP, Wi-Fi/dual-mode phones, hosted VoIP and other technologies. (See our original profile, at www.nwdocfinder.com/2855.)

Why we like it: VoIP technology is just as vulnerable to security threats as any other. As enterprises convert PBXs to server-based VoIP systems, and consumers cut their copper plain-old-telephone-service lines for VoIP, protecting traffic will become increasingly important. Sipera uses sophisticated protection techniques, such as behavior-learning, signature and anomaly filtering, fingerprint verification, protocol scrubbing, and rogue media blocking, and does so at throughput of 100M to 2Gbps depending on the device. In addition, the company has earned a strong reputation for its Viper Lab, active in the VoIP-security research community. Viper researchers have been credited with finding more than 20,000 potential VoIP security threats.

In addition, Sipera has partnered with AGN Networks to secure SIP trunking, and the IPCS has tested interoperable with systems from Avaya and Nortel.

How it got its start: Founder and CTO Krishna Kurapati sold IPCell Technologies to Cisco for $213 million in 2000, then pulled together a team of engineers to begin work on enterprise VoIP security out of a one-bedroom apartment in Dallas.

Management: The company has no CEO at the moment. Ben Scott, a venture partner from Austin Ventures, is chairman.

Funding: $29.5 million from Austin Ventures, Duchossois Technology Partners, Sequoia Capital and Star Ventures.

Who uses the product: Goldsmith Agio Helms (a 2006 Enterprise All-Star Award winner, see www.nwdocfinder.com/2913) and others.

Interesting fact: Sipera uses developers in Hyderabad, India.

TANGO NETWORKS www.tango-networks.com

Founded: October 2005

Headquarters: Richardson, Texas

What it offers: An appliance named Tango Abrazo that performs fixed-mobile convergence (FMC), linking almost any mobile phone with any enterprise voice system, whether legacy TDM, IP PBX or hybrid. No client code or wireless LAN connection are needed, not even VoIP, although Abrazo supports it.

Why we like it: A flock of start-ups and big players are getting involved in this move to fixed-mobile phone convergence. The Tango appliance makes full use of features on the PBX itself. Also, the company has no limitations on the type of phone (or PBX) supported, while some rivals require the use of smart phones that have a Wi-Fi adapter and VoIP. Cell phones are registered and provisioned on the appliances, which talk to each other during the call-set-up phase using a Tango SIP-based protocol. The mobile phone becomes an extension on the PBX. Tango announced support for IP Multimedia Subsystem, important for emerging advanced carrier services. In August, Tango inked a deal with Strata8 Networks that will provide Tango's FMC service to the enterprise market in nine states. The service is slated for the first quarter of 2008 in selected cities of Florida, Indiana, Kentucky, Ohio, New Mexico, North Carolina, Texas, Virginia, Washington and the U.S. Virgin Islands.

How it got its start: Founder Andrew Silver says he could never figure out why he couldn't just connect his existing mobile phone to the corporate voice system already in place. So he created

See Start-ups, page 27

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THREE IT DEALS THAT MATTER

As technology companies merge, enterprises should benefit from creative new products for collaboration, virtualization and data center automation

BY JON BRODKIN

MICHAEL SLOAN

Technology mergers and acquisitions have soared since 2002, with buyers worldwide spending $1.2 trillion to acquire almost 14,000 companies, according to The 451 Group, which maintains a merger-and-acquisition database called KnowledgeBase. Technology and telecom acquisitions in 2006 totaled $409 billion — more than all similar deals of 2002, 2003 and 2004 combined. In the first quarter of 2007, 20 deals exceeded $1 billion, while just 10 did so in last year's first quarter. The most significant deals aren't necessarily those with the biggest dollar values, however. Here are three technology mergers whose resulting products promise to have lasting influence in the enterprise.

WHO BOUGHT WHAT: Cisco nabs WebEx

WHEN: Announced March 15; closed May 25

VALUE: $3.2 billion

BUSINESS PLAN: Cisco has kept WebEx's management team, led by CEO Subrah Iyar, intact while making the acquired company the centerpiece of its collaborative software group. The WebEx team reports to Don Proctor, a Cisco senior vice president.

Cisco is intent on making WebEx's hosted collaboration services, including Web conferences and video conferences, integral parts of Cisco's unified-communications strategy. Through the integration of WebEx meetings and IP phones, for example, users now can launch a WebEx meeting on a PC by clicking a button on their Cisco IP phones. Further integration is planned in the coming months, but WebEx users can access the Web-based services even if they don't have Cisco devices.

WHY THIS DEAL MATTERS: Cisco is now a hosted-applications service provider for the first time. The move shores up Cisco's competitive position against Microsoft and its Live Meeting product, with WebEx holding 64% of the Web conferencing service market, says Claire Schooley, an analyst with Forrester Research. Cisco gains access to small-to-midsize businesses through WebEx, while conversely the acquisition gives WebEx inroads into larger markets, she adds.

Behind the scenes, Cisco is integrating WebEx with its unified-communications products, from instant messaging and IP phones to the TelePresence videoconferencing service. "Cisco is working on making it seamless to go from one kind of collaboration to another," Schooley says.

Some WebEx customers welcomed the acquisition, saying it would spur innovation. Cisco must be careful, however, not to disrupt WebEx's large customer base. Too much integration with Cisco products will "start limiting [WebEx], and Microsoft [Live] Meeting will just jump right in the middle and take over," says Ken Cooper, president of the Dallas/Fort Worth Cisco Users Group and a WebEx user.

WHO BOUGHT WHAT: Citrix Systems grabs XenSource

WHEN: Announced Aug. 15; closed Oct. 22

VALUE: $500 million

BUSINESS PLAN: XenSource CEO Peter Levine, now the head of Citrix's virtualization and management division, reports to Citrix CEO Mark Templeton.

Citrix has rebranded XenSource's server virtualization product line with the name Citrix XenServer, but says it has kept XenSource's product support staff in place and will not diminish the support provided to the newly acquired company's 1,000 customers. The next major change will come in the first half of 2008, when Citrix starts shipping XenDesktop, a desktop virtualization product that will combine Citrix and XenSource technology.

WHY THIS DEAL MATTERS: Citrix's purchase lends "significant financial and marketing muscle to XenSource" in its bid to compete with market leader VMware, says Nemertes Research in a report on the acquisition. In turn, fiercer competition will lead to more innovation in virtualization technology, Nemertes says.

XenSource may have saved itself from a cloudy future by being acquired, says Brian Gammage, a Gartner analyst. It had an interoperability agreement with Microsoft, but the deal had little long-term value because Microsoft will offer its own server-virtualization product, Hyper-V, as part of Windows Server 2008 expected out in February. Being acquired actually brings XenSource closer to Microsoft, Gammage notes, because Citrix and Microsoft have partnered on application delivery and thin-client technology. The deal's success, however, may come down to how aggressive Microsoft is with Hyper-V, he says.

WHO BOUGHT WHAT: HP acquires Opsware

WHEN: Announced July 23; closed Sept. 21

VALUE: $1.6 billion

BUSINESS PLAN: Opsware CEO Ben Horowitz now runs HP's Business Technology Optimization (BTO) software division, which also includes the Mercury Interactive business HP acquired last year in a $4.5 million deal for IT management software and services. Horowitz reports to Thomas Hogan, senior vice president of software.

The Opsware and HP support teams have been merged, company officials say. Don't expect major product changes, because the technology overlap between HP and Opsware is minimal. HP says it is tightly integrating the Opsware software and HP's configuration management database, all aimed at driving errors out of IT automation.

"All of the BTO software will have access to all of the configuration information that is created across the entire portfolio, including Opsware," says David Gee, vice president of marketing for software at HP. Specific product changes will be announced over the next few months, he adds.

WHY THIS DEAL MATTERS: The deal pressures other big vendors, including IBM, to acquire data-center automation capabilities. With Opsware off the market, however, the price for remaining acquisition targets probably will go up.

HP-Opsware came amid a flurry of data-center-automation acquisitions. BMC Software purchased runbook-automation vendor RealOps in July, a few days before HP moved to buy Opsware. EMC followed suit in October by purchasing Voyence, a maker of network change- and configuration-management software.

So, which company is next? BladeLogic is an enticing target because it is the most similar to Opsware among the vendors still on the market, and could claim to be worth as much as the $1.6 billion HP shelled out, says David Williams, a Gartner analyst. Like Opsware, BladeLogic's forte is server provisioning. "If BladeLogic does get acquired, anybody that doesn't have that capability will probably have to build it," Williams says. "This is not a trivial task. This is something Opsware and BladeLogic have spent a lot of time doing. This is not something that can be rushed to market with any shortcut." ■

IT ACQUISITIONS BY THE NUMBERS

Based on price paid, 2007's 10 biggest deals

$8.2 BILLION:
Silver Lake Partners and Texas Pacific Group acquire Avaya (June 4)

$8.1 BILLION:
Nokia buys Navteq (Oct. 1)

$7.3 BILLION:
Madison Dearborn Partners buys CDW (May 29)

$6.8 BILLION:
SAP buys Business Objects (Oct. 7)

$6.4 BILLION:
Microsoft buys aQuantive (May 18)

$5 BILLION:
IBM buys Cognos (Nov. 12)

$3.5 BILLION:
Siemens buys UGS (Jan. 25)

$3.3 BILLION:
Oracle buys Hyperion (March 1)

$3.2 BILLION:
Cisco buys WebEx (March 15)

$3.1 BILLION:
Google buys DoubleClick (April 13)

SOURCES: THE 451 GROUP'S M&A KNOWLEDGEBASE, AND *NETWORK WORLD*

Start-ups

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Tango to do that.

Management: In October, COO Alastair Westgarth became CEO. Founder Doug Bartek, who had been CEO, will retain the role of chairman. Founder Andrew Silver, an experienced wireless industry executive, is CTO.

Funding: $25 million from Motorola Ventures, Nortel, Signature Capital, TWJ Capital and Meridian Capital.

Who uses the product: Abrazo is in trials with several Tier 1 mobile carriers and in beta tests at select enterprise sites. The company anticipates releasing enterprise customer references in early 2008.

Interesting fact: Silver came up with the company name to convey the coming together of two things — in this case, the mobile network and the enterprise phone network — as in the opening moves of the tango. But Silver says he is not an exceptionally good dancer.

XANGATI www.xangati.com

Founded: June 2006

Headquarters: Cupertino, Calif.

What it offers: An appliance named Falcon that performs what the company calls rapid problem identification (RPI). The goal of RPI is to determine the cause of performance problems and inform IT about them first. The appliance taps into flow information from such protocols as Cisco's NetFlow, sFlow or cFlow, plus packets from other relevant applications. The technology discovers all IP endpoints and the applications running on them. This lets it profile the endpoint, be it a desktop, server, storage device, VoIP phone or PDA. RPI finds a baseline of normal behavior and then alerts staff when anomalous events occur.

Why we like it: The appliance is simple to deploy — it merely plugs into an available network port and is seen by the infrastructure as just another endpoint. It needs no probes or agents and the discovery process is automatic. "Xangati helps us stop the finger-pointing between the network and server teams," said Michael Gruen, IT project manager for Bernalillo County in Albuquerque, N.M., in our September profile (see www.nwdocfinder.com/2915). "It performs endpoint performance analysis without having anything installed on the client and has an appealing price point. As a government agency, less work to deploy and lower price are two big selling points and two less headaches."

Xangati also is targeting VoIP performance management, an application that can't afford to suffer slow performance.

How it got its start: Founders Alan Robin and Jagan Jagannathan felt that little progress had been made over the past decade in helping network operations' teams solve problems on the network, so set to work in building a product that did a one-up on traditional monitoring.

Management: CEO Robin was previously president and CEO of netVmg. Co-founder and CTO Jagan Jagannanthan has held executive positions at Reactive Network Solutions, Xerox PARC and Sun. Founder and chairman Rangaswamy Vasudevan was previously CTO for CacheFlow (now Blue Coat Systems) through its IPO.

Funding: $18 million from Walden International and Alloy Ventures.

Who uses the product? Bernalillo County in New Mexico, and Kerman Telephone.

Interesting fact: Before his gig in the corporate world (as a distinguished engineer with Sun), co-founder Vasudevan was a professor of computer science at the University of Calgary. ■

TECHNOLOGIES THAT MATTER FOR 2008 — AND BEYOND

Application dependency mapping, complex event processing and specialized security matter greatly for enterprise SOA

BY DENISE DUBIE

BRIAN GOMSAK

> “[APPLICATION DEPENDENCY MAPPING] REQUIRES A VERY FOCUSED EFFORT, BUT NO MATTER HOW YOU DO IT, YOU HAVE TO GET IT DONE BECAUSE THE INFORMATION IS A FOUNDATION FOR SO MANY OTHER INITIATIVES.”
>
> **JACOB HALL** VICE PRESIDENT OF PLATFORM AND DESIGN, WACHOVIA

Technology can be your best friend or your worst nightmare.

Well-chosen tools can help simplify IT management, align business goals to network projects and ensure secure operations under even the most dynamic conditions. The wrong technology can leave you still strapped with the same problems but without resources such as time and money. The promise of good technology drives network professionals to look for innovative tools that will advance the business. That search, however, requires they also wade through a sea of useless, inane and sometimes absurd technologies that can cloud their vision and muddy their decisions.

Here we narrow the search with three technologies that promise to make a difference in the enterprise in 2008. They have the potential to improve operational intelligence and efficiency, give the business an edge with IT know-how or bring fluid security to a mercurial environment.

A foundation for optimized service and performance

Almost everyone knows you can't manage an environment without first knowing what it comprises.

In the past, inventory and discovery tools worked to identify and catalog devices, systems and applications, but yesterday's technologies have no chance of keeping up with today's complex, distributed application architectures. Add to that new IP and service-oriented architecture (SOA) applications, and these older tools, which relied in part on manual effort, outdated standards and human memory, are toast.

Enter application dependency mapping (ADM). This breed of discovery technology goes beyond compiling a list of simple components to generating a map of how components interact and rely on each other. Network managers equipped with that information can more easily prevent performance problems from reaching users and prioritize work around the most critical applications.

“One of the biggest challenges today for IT organizations is changing from a bottoms-up approach, in which they piece together and manage components, to a top-down understanding of what the critical business applications are and how they can proactively manage them so as not to impact the business,” says Evelyn Hubbert, senior analyst at Forrester Research. “IT organizations still very much need to know what the bottom components are, but they need to be able to relate them to the applications that rise to the surface.”

ADM emerged several years ago, and large management vendors quickly acquired innovative start-ups that provided the tools to collect inventory, configuration and relationship data about applications in distributed environments. Just to name a few: CA acquired Cendura; EMC acquired nLayers; IBM acquired Collation; HP acquired Mercury Interactive, which had acquired Appilog; and Symantec acquired Relicore. BMC Software has its own ADM technology, part of its Atrium configuration management database (CMDB). Tideway Systems remains one of the only independent ADM specialty vendors.

The industry activity can be overwhelming, Hubbert says. But in the coming year, ADM will become less secondary and more primary for companies wanting proactive management of business-critical applications. “Companies with dynamic applications, and there are fewer companies that don't have such applications, cannot afford for them to go down. ADM will become part of the infrastructure to support and maintain applications,” she says.

For customers, ADM means getting a complete picture of what they have and knowing better how to optimize it. “The data center was basically invisible to us and we wanted to make it visible,” says Jacob Hall, vice president of platform and design for Wachovia Corporate and Investment Banking in Charlotte, N.C. After developing custom scripts to do data-dependency mapping for mission-critical equities applications, Hall came across Tideway Foundation, and about a year ago became an early adopter of commercial ADM software. Tideway's automation allowed Hall to deliver

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top-rate application performance while focusing his efforts on bigger projects such as a green data-center initiative and disaster recovery plans.

Tideway Foundation, a network appliance that uses agentless collection methods, gathers application configuration data from servers and other data-center devices and stores that information in a database of configuration blueprints. It also tracks configuration changes and alerts staff to potential compliance breaches.

As sophisticated as such tools as Tideway Foundation may be, network managers need to be aware they can't perform magic without some upfront work and patience. ADM is an ongoing project that can reap many rewards, but only with the right amount of commitment, Hall says. "There aren't any huge roadblocks. It just takes time. You didn't roll out an entire data center in a day, so you won't be able to easily see everything in one day. It requires a focused effort, but no matter how you do it, you have to get it done because the information is a foundation for so many other initiatives."

Business intelligence brought to real-time events

Delays in learning why a customer didn't receive requested merchandise, service or information aren't acceptable to business managers. Complex event processing (CEP) promises to speed those answers and enable businesses to stay on top of the performance issues that pose customer satisfaction problems. The software combines the event-processing capabilities often seen in management applications with business-process and intelligence tools to deliver information in real time about the state of a business application, transaction or service. Data-streaming features coupled with event-processing capabilities integrate data from multiple sources to deliver information to act on, says James Kobielus, a principal analyst at Current Analysis.

"CEP is a core capability that enables real-time business intelligence and business-activity monitoring. It makes it possible to respond to business events in real time and alert the appropriate people and feed the event information into automated workflows," Kobielus says. "CEP helps enable automated, rules-driven responses to critical events."

Vendors focusing on CEP include Agent Logic, Aleri, Altosoft, Coral8, GemStone Systems, SeeWhy Software, StreamBase Systems and Vhayu Technologies. In addition, larger vendors with SOA, middleware or business process management (BPM) technologies have been dabbling in CEP. Such companies have been beefing up their CEP offerings with strategic acquisitions and product upgrades. For instance, IBM acquired Data Mirror in September, and BEA Systems updated its WebLogic Event Server application earlier this year to better discern trends in event processes and help companies prevent performance problems or thwart threats.

CEP ties customers' network and system components to applications and business processes in a way that helps IT understand how all the pieces come together. "I started in the systems management space, where we used to monitor the CPU of a server or the components. We didn't monitor the business processes, and we really couldn't tie the two together. In a lot of cases IT didn't even know the business processes it was supporting," says Eric Bruner, senior manager of systems development at Sallie Mae, a financial services provider in Reston, Va.

ONLINE

What's technology matters most to you?

Jump into an online forum to tell us which technology made the most difference for your enterprise in 2007. www.nwdocfinder.com/3051

Sallie Mae recently received an Enterprise All-Star Award for a CEP project aimed at decoding the Web-content and application issues plaguing the company (see www.nwdocfinder.com/3039). Sallie Mae uses Coral8 software, which the vendor calls a "data-crunching engine" that can process events from network and systems-management software, click streams, message buses and external applications. In the Sallie Mae configuration, TeaLeaf Technology's CX Web-application-monitoring software feeds customers' online-experience data to Coral8. The goal is to eliminate the wait between events and IT's understanding of the potential impact.

CEP is an early adopter's technology, used in stovepipe fashion for specific applications, Kobielus says. Marketplace confusion and a lack of standards have inhibited CEP from becoming an everyday tool, he adds. Until such groups as the Event Processing Technical Society develop common languages, formats and more for CEP tools, enterprise IT managers need to work with their business-intelligence, BPM, middleware or SOA vendors to figure out how CEP would work in their environments, Kobielus says. "It is entirely possible to create more of a mess with multiple [enterprise service buses], SOA governance tools and CEP products," he cautions.

Security in a dynamic environment

SOA's arrival brings many changes to IT environments, not the least of which involves security. Because SOA applications are loosely coupled and reuse components scattered about an environment, they are not ideal for the locked-down nature of most enterprise security technologies in use today. The looming issue of security in an SOA environment has some industry watchers looking for technologies and tools that could fall into a bigger category of security-oriented architecture or, put simply, security for SOA.

"The fundamental security challenge SOA presents is that by abstracting IT capabilities and data as services, the security for those capabilities is at risk of being lost," says Jason Bloomberg, principal at ZapThink. "As a result, SOA essentially necessitates enterprisewide identity and access management to maintain the security context for users as they interact with abstracted services — essentially allowing the right users to do what they're supposed to do. Services must be protected from threats, as well — preventing the wrong users from doing what they're not supposed to do."

That means instead of locking systems down, IT security executives need to learn how to attach security measures to components that operate independently in the environment. One way to provide such protection is with XML firewalls or content-level protection (such as the technology Citrix Systems just acquired with QuickTree) and endpoint security tools, such as antivirus, network-access-control and intrusion-prevention tools. Other options include "entitlement management," an up-and-coming extension of identity- and access-management technologies that includes fine-grained, role-based access controls. These technologies require detailed policies for access rights to applications, which could be extended into an SOA environment.

"Security is becoming identity-centric, and this goes well beyond simply directories and into detailed entitlements. That is a move in the right direction," says Andreas Antonopoulos, a founding partner at Nemertes Research. "We have to move away from the security model of the past that involved one vendor and closed systems with little ability to do anything outside of that system. In an SOA environment, you may have one, primary security vendor, but that vendor can accept data from multiple sources to make security more fluid to better address subtle threats and to ensure protection across the components."

The problem around securing SOA environments today isn't the lack of promising concepts, however; it's the absence of standards, industry watchers say. Standalone SOA security vendors, such as Forum Systems and Layer 7 Technologies, have emerged to augment the market and security efforts by such SOA providers as SOA Software and Software AG. Pure-play security vendors haven't quite come on board with the effort, however, which stalls standards and prevents true security-oriented architectures from being developed, Antonopoulos says. For now, that leaves enterprises cobbling together their identity and access-management and single-sign-on deployments to SOA initiatives.

"Buyers need to make SOA features critical to their security-buying decisions going forward," Antonopoulos says. "2008 will bring a higher level of adoption for SOA, and that is going to put pressure on security infrastructures to adapt; security vendors would be well served to work on those integrations and standards that would enable the exchange of information security-oriented architecture requires." ■

THREE IT PROJECTS THAT MATTER

Privacy, enterprise rights management and data-center automation projects are proving invaluable as companies look for news ways to protect data

BY SANDRA GITTLEN

While rapid-fire cost-savings and consolidation efforts typically dominate an IT executive's annual to-do list, multiphase projects that protect organizations from regulatory fallout and data leakage are what's getting the green light now.

At the California Department of Health Care Services (DHCS), for example, increased federal mandates and heightened media attention have led to a focus on projects that prevent data loss, says Christy Quinlan, CIO at the Sacramento agency.

"I know that whatever we spend on projects to secure data would be a whole lot cheaper than having to deal with even one leak," Quinlan says.

IT executives in a cross section of industries, including government, education and the private sector, share the sentiment. In fact, three specific project areas — privacy, enterprise rights management and data-center automation — are getting the go-ahead because they can enable better data protection.

Privacy

Since she took office as CIO in 2005, Quinlan has had a laser-like focus on improving the systems at the DHCS, a 2007 Enterprise All-Star Award honorable mention designee (see www.nwdocfinder.com/3035). She describes herself as a doer, not a talker, and doesn't understand why implementing new technologies takes some IT teams so long. Being a doer served her well earlier this year when the U.S. Social Security Administration (SSA) notified her team that its primary system, Medi-Cal, violated the Health Insurance Portability and Accountability Act's regulations.

The mainframe-based application wasn't able to prove that only need-to-know personnel were gaining access to private patient information, the SSA said. More than 70,000 workers in 58 counties use Medi-Cal to access Medicare and Medicaid claims.

To come into compliance, Quinlan needed to install role-based access privileges coupled with auditable time-stamping. "The SSA said we only had a short time to fix the problem or it was going to deny us access to its network," she says. The DHCS had no time to rewrite the Medi-Cal application code itself or to do any major system changes.

Instead, the agency opted to tack IBM's Resource Access Control Facility (RACF) onto the mainframe to manage and log role-based permissions atop the Medi-Cal system's own, basic built-in privileges. Now Quinlan can set multilevel security policies based on users and the types of files they are trying to access. "This depth of tracking allows us to create a full audit trail," she says.

To avoid passing the complexity of a layered system on to users, Quinlan's team synchronized user names and passwords for RACF and Medi-Cal. "They have a single point of entry and don't have to log on with separate identities," she says.

Having met the SSA's deadline, Quinlan has returned to other privacy initiatives, including encrypting the more than 8,000 DHCS desktops and laptops in accordance with — and in some cases ahead of — state and federal regulations. "There's still no requirement to encrypt desktops, but why wouldn't you when you could have tremendous credibility damage if data were lost?" she asks.

Andreas Antonopoulos, senior partner at Nemertes Research, applauds organizations that are tackling privacy problems head-on. "You can easily protect against data loss with checks and balances and separation of duties," he says.

Antonopoulos also recommends prioritizing which data needs to be retained and for how long. "The best security policy is not storing data you don't need," he says. Also, he advises IT teams to avoid using Social Security numbers and other critical data as identifiers.

Pennsylvania's Department of Agriculture follows right-to-know policies to make farmers feel safe providing sensitive information, says Sean Crager, CIO at the state agency in Harrisburg. "By having strong privacy policies, we increase enrollment in important [animal disease] awareness programs," he says.

For instance, the department encrypts sensitive information at the field level in its SQL Server database. This gives the department a twofold advantage, Crager says: It lets the agency specify the data to be secured, and avoid performance hits that would arise from encrypting the entire database.

Crager also ensures he stores only necessary information, offloading tasks such as credit-card processing to trusted third parties. "My goal is to keep as little personal data as possible. If we don't need it, I don't want it," he says.

Enterprise rights management

While Quinlan and Crager home in on keeping their customers' personal data secure, Bill Leo, CIO at management consultancy Oliver Wyman Delta Organization & Leadership in New York, is putting technology in place that will help him lock down his firm's own intellectual assets.

"We author many industry reports on organizational change and leadership development. We want to make sure that that intellectual capital doesn't fall into the wrong hands to be used in a competitive nature," Leo says.

In the past, users were able to download reports to their laptops. "People were walking around with our entire intellectual database on their computers," Leo says.

Today, Leo is piloting an enterprise rights management (ERM) system that will control access to and retention of the company's intellectual assets. Using a combination of Microsoft Office SharePoint Server and Microsoft Active Directory, authors can set policies that govern who can view and distribute their reports.

In the first phase of the new system, Leo is focusing on rolling out internal access-rights management for more than 200 employees worldwide by year-end.

Once an employee creates a report, he loads it into the SharePoint repository and assigns it access rules. For instance, he can restrict it to internal use and make only a brief description of the report viewable.

The Web server-based system protects documents from being downloaded, copied or sent into unsecured environments. "No one can distribute a report later because it does not reside locally," Leo says.

Employees can search the database via Active Directory, and depending on their access rights, view reports or receive information about whom to contact for access to the documents. "By incorporating SharePoint with Active Directory, there is a single point of governance around the data," Leo says.

In the second phase of the ERM project, Leo wants to enable document sharing between employees and external users, such as customers and business partners, on a limited basis. Toward this end, he is evaluating digital rights management (DRM) tools, such as Adobe Systems' Adobe Document Center, that tack privileges onto specific files.

"DRM allows for different criteria to be established for document management, such as one-time-only printing, making document viewing computer-specific, and retaining and expiring documents according to policies," Leo says.

Leo has coupled this project with acceptable-use education, explaining to employees that the ERM system has been put in place to protect corporate assets. He also works closely with the business units to develop criteria for access rights. "If it were up to me, I'd say nothing is allowed. But I can't speak to what's sensitive and what's not. IT is the custodian of the information, not the owner," he says.

Most important is coupling ERM with strict policy enforcement, as well as intrusion-detection and -prevention systems, says Nemertes' Antonopoulos, an admitted DRM skeptic. "There is no way you can stop a determined person from stealing data. Anything that can be viewed, heard or consumed in any way by an end user can be copied," he says in explaining why DRM concerns him. At least ERM involves a closed system with enforceable policies, he adds.

Data center automation

Joanne Kossuth, CIO at 2006 Enterprise All-Star winner (www.nwdocfinder.com/3036) Franklin W. Olin College of Engineering in Needham, Mass., takes a different tack on data protection. "In my experience, data leakage often occurs because of human errors in [software and hardware] configurations throughout the enterprise," she says.

These errors leave data vulnerable to hacking and theft. "When something goes wrong you have a 'he-said/she-said' scenario and it's difficult to determine who did what and the consequences those actions had," Kossuth says.

For Kossuth, whose network falls under the Sarbanes-Oxley Act and other compliance mandates, this is unacceptable. So, she employs automated tools wherever possible to monitor and audit changes to configurations, including switches, servers and storage devices.

For instance, Kossuth uses Nortel's Enterprise Switch Manager and Optivity Telephony Manager to watch over her switch and VoIP environments, respectively. She also takes advantage of Microsoft tools, such as SQL Server Configuration Manager, for her Windows servers.

She has even applied automated change- and configuration-management tools to ensure her newly upgraded Nortel/Trapeze 802.11g wireless environment won't be susceptible to data leakage. "We automatically configured all access points instead of configuring each one separately."

Kossuth's next project involves automating changes in configurations among the virtual servers in her data center. "It's going to be very challenging to handle change and configuration management in a highly virtualized environment," she says. From what she's seen in the testing she's done so far, "the tools out there are not yet that sophisticated and need to evolve to provide a good overview of the current state and allow for testing of new configurations and their consequences before applying them."

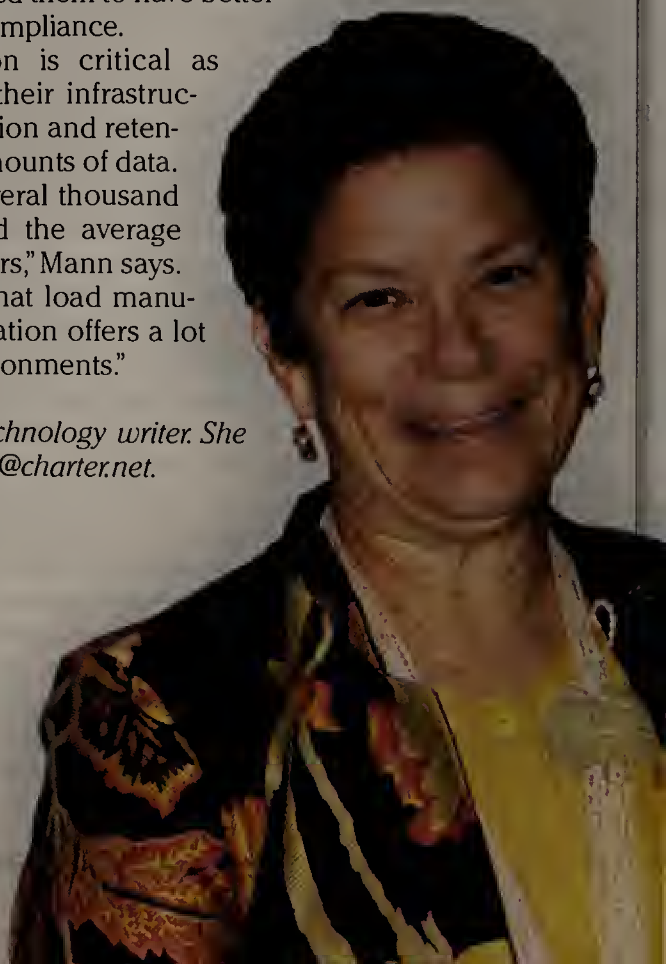
Kossuth is not alone in her thinking that automation is the answer to protecting data, says Andi Mann, research manager at Enterprise Management Associates. In a recent EMA study, 45% of respondents said data-center automation addressed their need to reduce human errors, 43% said it enabled them to have better security and reduce risk, and 35% said it allowed them to have better audit and control from compliance.

Data-center automation is critical as organizations build out their infrastructures to support the creation and retention of ever-increasing amounts of data. "Each server requires several thousand configurations on it, and the average data center has 300 servers," Mann says. "Being able to manage that load manually is impossible. Automation offers a lot of payback in these environments."

Gittlen is a freelance technology writer. She can be reached at sgittlen@charter.net.

CHRISTY QUINLAN **CIO, CALIFORNIA DEPARTMENT OF HEALTH CARE SERVICES**

> "THERE'S STILL NO REQUIREMENT TO ENCRYPT DESKTOPS, BUT WHY WOULDN'T YOU WHEN YOU COULD HAVE TREMENDOUS CREDIBILITY DAMAGE IF DATA WERE LOST?"



HUAN TRAN

IPHONE:

WHY ONE LITTLE GADGET MATTERS SO MUCH

BY ROBERT MULLINS

With its picture gracing the cover of *Time's* Nov. 12 "Best Inventions of 2007" issue, the iPhone indisputably is a technology product that matters to consumers. In IT these days, that can mean only one thing — the enterprise is its destiny.

Just as instant messaging and Wi-Fi access migrated from the consumer to the enterprise environment, so too will the iPhone. User enthusiasm for the device, which made its grand debut on June 29, remains high. In a survey of 110 corporate messaging decision-makers, Osterman Research recently found the iPhone is by far the most-requested mobile device. Seventy-two percent of the respondents say employees are asking for iPhone support. The next most-requested device is the Palm Treo platform, at 29%. Suffice it to say, the iPhone is a phenomenon that really matters to employees.

The pressure mounts

Nine percent of the companies surveyed support the iPhone in their organizations. While small, that's still impressive, given how new the iPhone is, says Michael Osterman, president of the research firm. The iPhone stands to gain support in the enterprise from top executives who are early adopters of new technology. "They'll go to the IT department and say, 'I'm using an iPhone now. I need you guys to support it.' I don't know of many IT managers who are going to tell the CEO, 'Sorry we don't support that,'" he says.

The iPhone pressure already is building at DirecTV, says Erik Walters, manager of sales technical operations for this El Segundo, Calif.-based satellite TV service provider. (DirecTV recently won an Enterprise All-Star Award; see www.nwdocfinder.com/3026). "I know we have some salespeople who are very intrigued by the iPhone and would love to be able to use it," Walters says. iPhone's GPS-enabled map feature in particular has caught the attention of traveling salespeople. DirecTV already supports the BlackBerry platform, however, and it would be up to the network-security people to add in the iPhone, he says.

Perfect, it's not

While IT managers are taking a second look at the iPhone, the device isn't enterprise-ready yet, industry watchers say.

Chris Hazelton, an IDC mobile technology analyst, laughs at the notion of the iPhone as "the Jesus phone," referring to the hype surrounding its launch. Existing mobile platforms offer something iPhone can't, no matter how many true believers Apple may have. "The capability of Windows Mobile to create Office documents is pretty powerful," he says.

In addition, without support for Microsoft Exchange or IBM's Lotus Notes, iPhone users don't have a secure way to get work e-mail. That could change depending on how far Apple opens the iPhone to third-party software applications. Initially, Apple let only third-party applications be delivered through the Safari Web browser. Then, after people started adding their own applications anyway, even at the risk of voiding their warranty, Apple blinked. In a move that has encouraged some IT people to take a second look at the iPhone, CEO Steve Jobs said the company will release a software developers kit in February 2008.

To satisfy enterprise users who want to make the iPhone their work phone, Apple would be wise to allow Microsoft's Windows Outlook as an approved application. In the Osterman survey, 85% of senior managers said on-the-road access to Outlook is "important" or "extremely important." It's also just as important to 73% of IT staff and 66% of salespeople.

Apple's support for Exchange (the e-mail server that sends messages to the Outlook client program), IBM's Lotus or other enterprise applications could convince more enterprises to support iPhone for their employees, Osterman says. Also, while there are some companies that support just one platform — Windows Mobile or BlackBerry, for instance — IT departments eventually may have to support multiple platforms, including iPhone, whether they like it or not, says Rob Dalgety, marketing director for Mformation, a mobile-device management-software company.

Windows Mobile and BlackBerry might dominate in the United States, but the market probably will become fragmented as more employees further down the corporate ladder use mobile applications, sometimes on their personal cell phones, Dalgety says. "If you start expecting more employees to be accessing enterprise applications deeper into the organization, sometimes that will not be done on an enterprise-owned device. That implies that fragmentation is going to be quite pervasive across the enterprise," he explains.

Accounting for seepage

The iPhone also can seep into enterprises adopting the software-as-a-service model. For example, Salesforce.com subscribers will be able to use the applications on iPhones, the company says, because that software is delivered to them online.

For a few business people, the iPhone's appeal as a consumer device is precisely why it's perfect for their business. The iPhone helps in sales pitches, says Nicole Amodeo, a sales executive at The Hyperfactory, a mobile advertising company in New York. She pairs an iPhone with a MacBook laptop to serve clients. "The iPhone is a good thing" because its browser delivers the same image of the Web seen on desktop or notebook computers, rather than the scaled-down Web seen on other smart phones, she says. "I actually have the Web on my phone."

Mullins is a technology writer in Santa Clara, Calif. He can be reached at rjmullons5@comcast.net.

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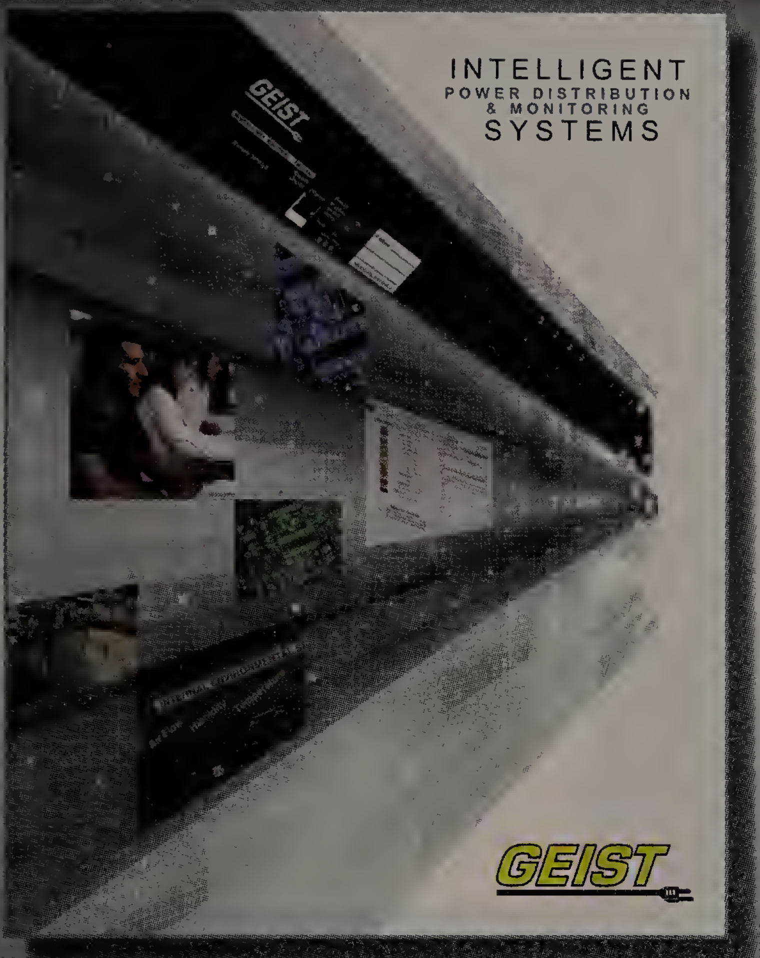

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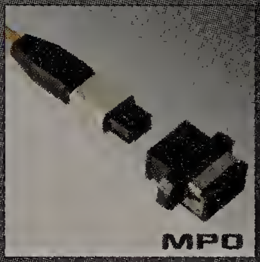
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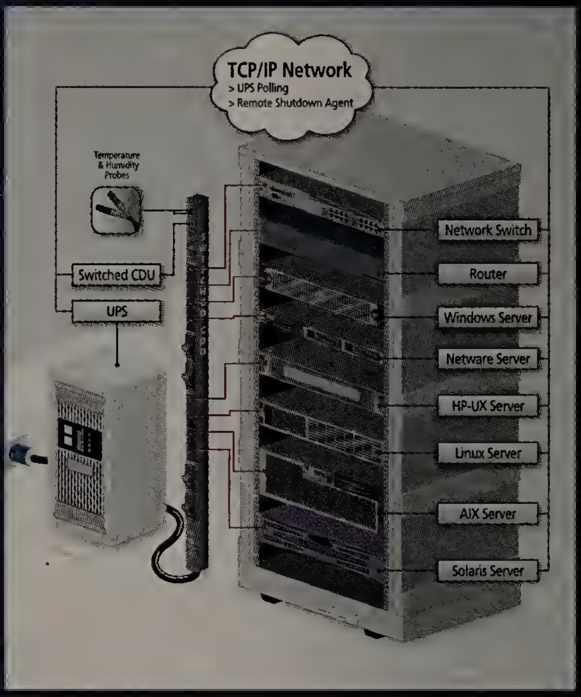

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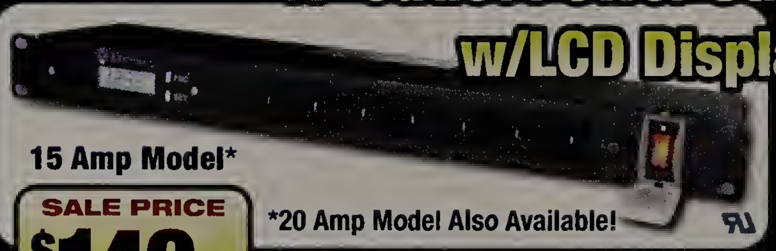

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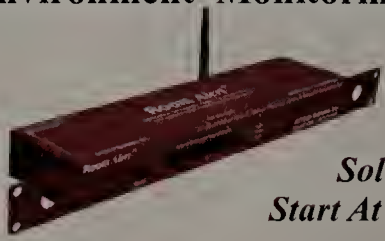

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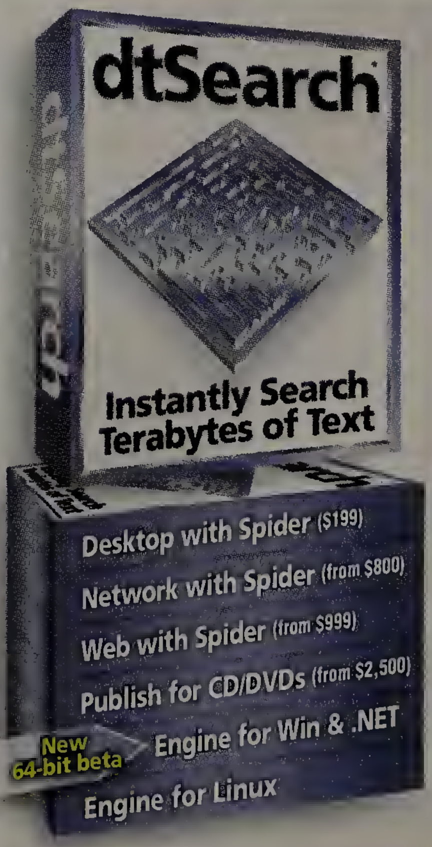
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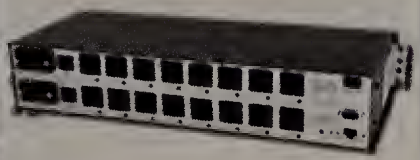

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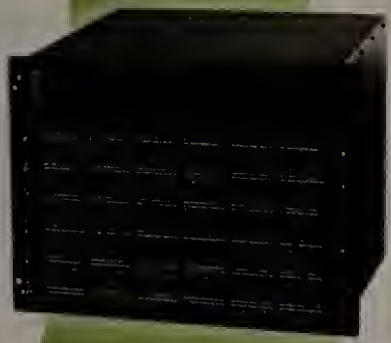

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JOB SKILLS THAT MATTER:
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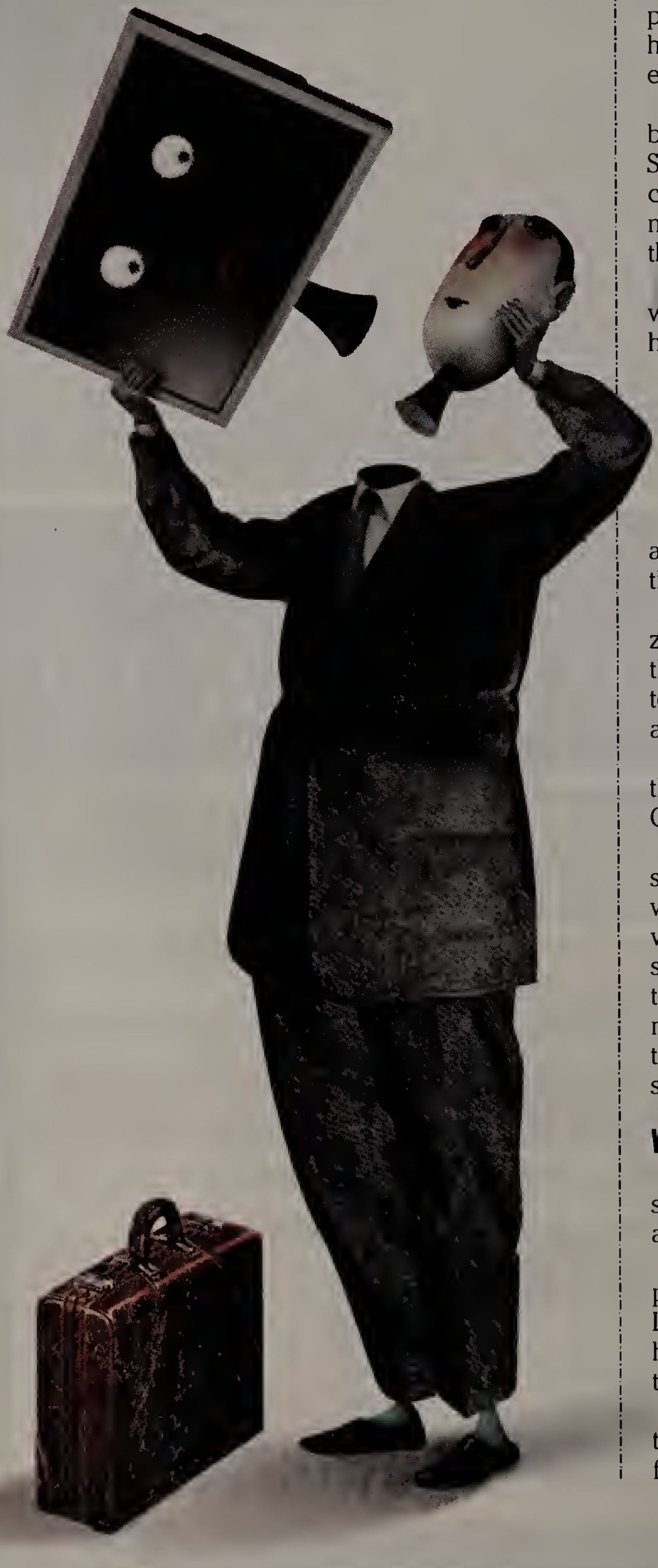
Understanding business ethics, knowing how to communicate effectively and being a great project leader could serve IT professionals better than technical expertise

BY CAROLYN DUFFY MARSAN



All business. That's what network professionals need to be in 2008 if they want to have the most profound impact at their companies.

The hottest skills for IT professionals to develop center on business acumen rather than deeper technical expertise. Project management, financial analysis and communications skills are in big demand, according to CIOs, recruiters and IT staffing specialists.

Network professionals still need a solid technical foundation (see related story, page 40). With limited time for professional development, however, they should hone their business skills rather than pursue additional technical certifications, experts recommend.

"Companies love finding employees who can make sure that technology is being used to deliver business value," says Matt Colarusso, branch manager with Sapphire National Recruiting. (Go to www.nwdocfinder.com/3025 for an archived career chat with Colarusso.) "They are always looking for people who can communicate, who can bring together the technical side with the business side and the customer side."

David Foote, president of Foote Partners, which conducts IT salary surveys nationwide, agrees. "Technical skills are important, but companies need people who know how to apply them," he says. "Companies need people who understand how to move the business forward, who have good instincts and a lot of business knowledge.... It's all about execution."

More — and more widespread — business skills

A recent survey of 130 CIOs and IT executives conducted by the Society for Information Management (SIM) found that the top five skills for midlevel IT hires are all business related: ethics/tolerance, problem solving, written/oral communication, collaboration and project leadership.

The SIM survey shows that business skills are needed further down the IT organizational chart, says Steve Pickett, immediate past president of SIM and chairman of the SIM Foundation. "More and more, IT people are dealing directly with their counterparts in the business. It's no longer just the top IT executives," says Pickett, who also is CIO of Penske, in Bloomfield Hills, Mich.

One of the top 10 CIO priorities is building business skills in the IT department, the SIM survey found. In 17 years, this priority had never before been listed among CIOs' top 10 concerns.

IT professionals "need to be able to dissect a business process and understand what components of a business process will be impacted by technology," Pickett says. "Then they need to be able to sell the technology. They need pretty good communications skills, pretty good organizational skills and pretty good translation skills to do that."

Which business skills to develop

Increasingly, CIOs say they need their IT staffs to have equally strong technical and business skills.

Jeff Ton, vice president of enterprise processes, information and technology at Lauth Property Group in Indianapolis, says he's emphasizing communication and teaching skills in his hiring for 2008.

"We're finding good technicians, but the typical technician likes to sit with their face to the computer and just code all

IT JOB SKILLS FOR 2008

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See Jobs, page 40

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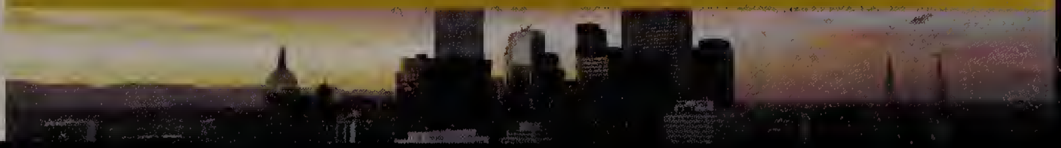

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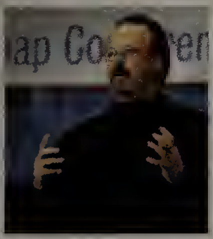

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continued from page 38

day," Ton says. "We really need folks who are willing and able to get out and interact with the business leaders. We're trying to continue to break down the walls between the business-line folks and the technology employees."

Another key business skill that IT professionals should develop in 2008 is project management, experts agree. Some CIOs recommend certification by organizations such as the Project Management Institute. "Project management skills are very, very helpful," says Henry Eckstein, CIO of York Insurance Services Group in Parsippany, N.J. "You're more likely to be able to trust somebody to handle complex projects if they have project management skills, not just if they know how to use Microsoft Project."

Within the last two years, Sapphire's biggest clients have started requesting that IT professionals be trained in Six Sigma, a statistical technique developed in the manufacturing industry that is being applied in IT departments for managing projects, improving processes and cutting costs, Colarusso says.

Bob Veeneman, director of IT integrated planning at Blue Shield of California, a health insurer in San Francisco, says he's looking for IT professionals who understand business processes. "It helps the IT organization to deal better with the business when the business knows that the IT person they're looking at actually has knowledge and maybe even experience in their business area," Veeneman says. "We used to have IT people who were well versed in IT solutions, who would say to build or buy this application. The business is saying that's not good enough."

Finding the right balance

That's why Elinor McKinnon, CIO of Blue Shield of California, is creating an internship program that will let key IT professionals rotate into business units. "It may make sense for us to recruit for our operations inside the organization by going over to our business partners and asking them to profile people who over the years have acquired systems knowledge and own a business process, and then bring them over to the IT world," Veeneman adds.

Blue Shield of California also is training 50 IT directors and managers in Version 3.0 of ITIL, an IT management technique. "If we invest in their education and apply the ITIL service catalog, we're going to get managers who understand how to compute the cost of their business or IT function," Veeneman says.

The key for network professionals is to strike the right balance between keeping their technical skills current and polishing their general business skills, experts say.

"If you have business skills but you don't have the technical skills, you're going to come up with the wrong technical answer," Pickett says. "Someone who has technical skills and can learn business [skills] is probably the preferable choice."

IT folks don't need MBAs, Veeneman says, but they do need to understand how business works. "We're asking our IT people: How do you know there's a bona fide return on investment? What would you do at the end of your effort to explain what benefits were realized as a result of doing this effort?" he says. "Some IT folks say, 'Why should I have to do this?' But that's the business."

So at the end of the day, what's more important for IT professionals: business or technical skills?

"Business skills are becoming equally important because you have to be selling your projects and justifying your expenditures and doing presentations," York's Eckstein says. "You have to understand how to read a balance sheet and a profit-and-loss statement. You need effective technical writing skills because there is a lot of interaction with the business. . . . I'd rather have a person with strong business skills than strong programming skills."

"If I had to pick one, I'd say business skills," Lauth's Ton agrees. "I don't want to trivialize learning the technology, but I think the way that technology is evolving is becoming more mainstream. The skills of understanding the business and being able to apply technology to the business are paramount." ■

TECHNICAL SKILLS THAT STILL MATTER

VoIP and security are among the areas of expertise in heaviest demand

While business acumen may help you finesse your next great career move, technical skills are still important, particularly in VoIP and security.

At Sapphire National Recruiting, the number of client requests for VoIP positions increased more than 200% from 2006 to 2007, and the number of security positions is up 153% during the same time frame, says Matt Colarusso, a branch manager for the firm. (Go to www.nwdocfinder.com/3025 for an archived career chat with Colarusso.)

"Cisco is the highest demand. We definitely see demand for VoIP, and we see demand for network administrators who understand all parts of the network: the LANs, WANs, voice, Internet, and how they all work together," Colarusso says. "Our clients are interested in people who have done VoIP implementations."

In addition, the demand for network professionals with security expertise has "hit us in the face in the last 12 months," Colarusso says. "I don't remember that being in the forefront in the last two quarters of last year."

"Network security management is huge," agrees David Foote, president of Foote Partners, which conducts IT salary surveys nationwide. "In terms of great networking skills that are going to help your career, I'm seeing VoIP, unified communications, convergence and virtualization. I'm also seeing mobile user support . . . and the ability to support hybrid networks with Unix, Windows and Linux."

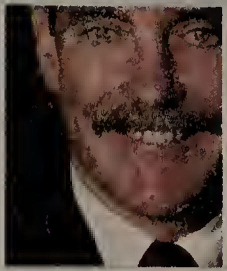
Henry Eckstein, CIO of York Insurance Services Group in Parsippany, N.J., says the technical skills he needs most on his IT staff are virtualization, storage-area networking and network security.

"Our focus is on higher-level skill sets — five to 10 years of experience as opposed to two or three," Eckstein says. "The experience matters as much as the skill sets. Certifications are important, but we've got a lot of super people who didn't necessarily get their certifications or who let them lapse."

Foote recommends that network professionals develop broad technical skills rather than becoming experts in one area.

"If you're going to be a technical specialist, you can't get away with being deep in one area," Foote says. "You're going to need to be able to work across the enterprise and across several platforms. . . . God forbid if you are too narrowly focused."

— CAROLYN DUFFY MARSAN



"More and more, IT people are dealing directly with their counterparts in the business. It's no longer just the top IT executives."

STEVE PICKETT **CIO, PENSKE**

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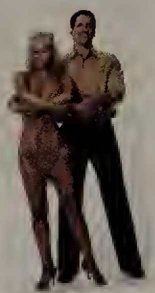
WHAT DOESN'T MATTER

Enough about what matters. NetBuzz's Paul McNamara tells us what doesn't — or won't by the time we hit 2009 — from A to Z

A. Apple in the enterprise, still. A few Macs for those temperamental artists, a couple of iPhones for the suits. Done.... Also AOL, not that it ever mattered to me, but you know AOL has drifted from this mortal coil when its TMZ.com gossip site tries to besmirch Marie Osmond's good name by alleging she staged her infamous fainting spell. The nerve.

B. Ballmer bombast about pretty much anything, but especially Google, does not matter.... Also blog critics, who as a group have become unbearably tedious, as well as demonstrably wrong about the importance of these personalized soapboxes.



C. Civil liberties — on the phone, the Internet, even real life — won't matter again until Jan. 20, 2009, at the earliest, depending on what happens Nov. 4, 2008.... Also Cuban, Mark, who's worn out his welcome as a dancer and blogger; and the compact disc, which, having turned 25 in 2007, is circling the drain.

D. Digital rights management and DSL don't matter, the former being an exercise in futility and the latter being a technological fish wrapper.

E. E-cards, e-petitions and e-voting: Don't dare open the first, don't bother signing the second, and don't ever trust the third.

F. Fake Steve Jobs was very funny, but he's over. The country yearns for a new fake celebrity executive.

G. Green IT, at least in the tree-hugging sense. C'mon, people, it's all about cutting costs, not saving the planet, so let's come up with a more honest buzzword.

H. HTTP, at least the version we've all come to know and love, because the ubergeeks at the IETF are busily plotting an upgrade if not an overthrow.

I. IPv4 and IPv6. The former doesn't matter because, as everyone should know by now, address space is running dry. The latter doesn't matter because no one seems anxious to spend big bucks on it. Anyone want to rally around IPv5? ... Also ICANN, a perennial; and the Ideal Digital Kitchen from the Internet Home Alliance, because no one needs a "recipe projection system."

J. The Justice Department's opinion on Internet neutrality matters in much the same way that its take on country music would — not at all.

K. Kumar, Sanjay, one-time CA CEO, now doing time for cooking the books.

L. Land lines. With a quarter of under-30s going cell only, when land lines won't matter is only a matter of when.

M. Marketing blogs because, well, they're marketing blogs.

N. Novell, sadly. Remember the days when Novell mattered — that is, when it battled Microsoft instead of cozying up? Seems like eons ago.

O. Opposition to online gambling won't matter for much longer, both because it is futile and because I wish it so.

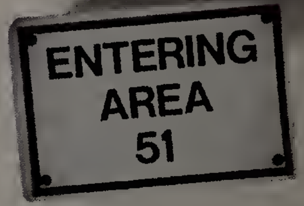
P. Public opinion, because it's always about the money.... Also privacy, online and off; Paul, Ron; PowerPoint presentations, because they rot your brain; Propeller (you've never heard of it, which proves my point); packaged software; PBX, and PDF spam. Heck, the entire letter P seems not to matter anymore.

Q. Quiznos, because I've grown tired of the toasty thing, and I need a Q.

R. RadioShack, quoting great *Onion* headline: "Even CEO can't figure out how RadioShack is still in business." ... Also RegisterFly, which really is out of business and deservedly so.

S. Stuart Scott, once a high-flying CIO at Microsoft, now a notorious COO for a mortgage company.... Also Second Life, which will be rendered irrelevant by a third; SCO, thankfully; and any server running a Linux operating system from other than Red Hat.

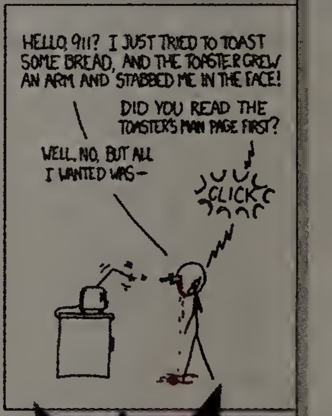
T. TSA will matter less to the flying public when getting gadgets through security becomes easier as sanity slowly returns to air travel.... Also Tasers, because the lawyers will insist.



U. UFOs, and I've got 10 good reasons, starting with the curiously elusive alien monkey wrench (see www.nwdocfinder.com/3033).

V. Vonage, because everyone's already had their turn suing it.... Also "virtual marriage," a zany notion cooked up by a Gartner analyst.

W. Weep not for WEP; the Wired Equivalent Privacy standard may not matter any more, but it served long and well.

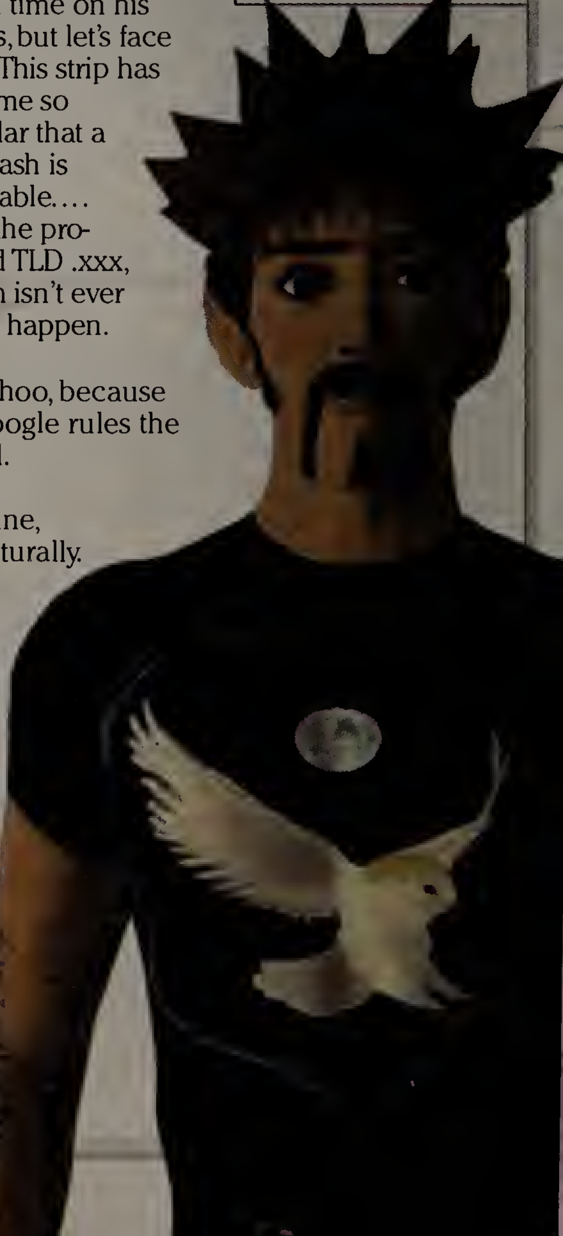


HELLO, 911? I JUST TRIED TO TOAST SOME BREAD, AND THE TOASTER GREW AN ARM AND STABBED ME IN THE FACE!
DID YOU READ THE TOASTER'S MAN PAGE FIRST?
WELL, NO, BUT ALL I WANTED WAS—
CLICK

X. Now, I love xkcd as much as the next guy with too much time on his hands, but let's face facts: This strip has become so popular that a backlash is inevitable.... Also, the proposed TLD .xxx, which isn't ever going happen.

Y. Yahoo, because Google rules the world.

Z. Zune, naturally.



_INFRASTRUCTURE LOG

_DAY 89: Our power and cooling costs are out of control. We spend the bulk of our IT budget just keeping the data center cool. I told Gil we need to go green in a big way.

_DAY 91: Gil took us green...kelly green, to be exact.

_DAY 93: You don't go green with paint. You go green with IBM Cool Blue™ technology and energy management services. Advanced server and storage virtualization can help consolidate our boxes to lower energy usage. And the new IBM POWER6™ systems help us use less energy doing the same amount of work.[1]

_Our data center will be green now. And painted white.

IBM®

Learn how to make your data center more efficient:
IBM.COM/**TAKEBACKCONTROL**/GREEN

[1] Requires Advanced Power Virtualization, which is optional and available at an additional charge. IBM, the IBM logo, Cool Blue, POWER6 and Take Back Control are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. © 2007 IBM Corporation. All rights reserved.

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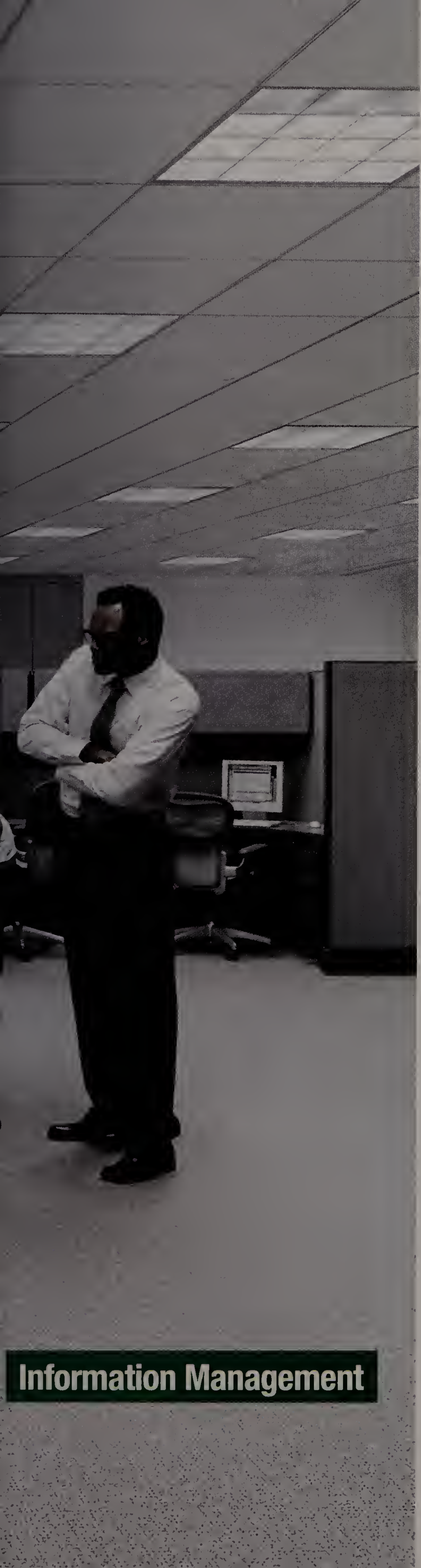


_INFRASTRUCTURE LOG

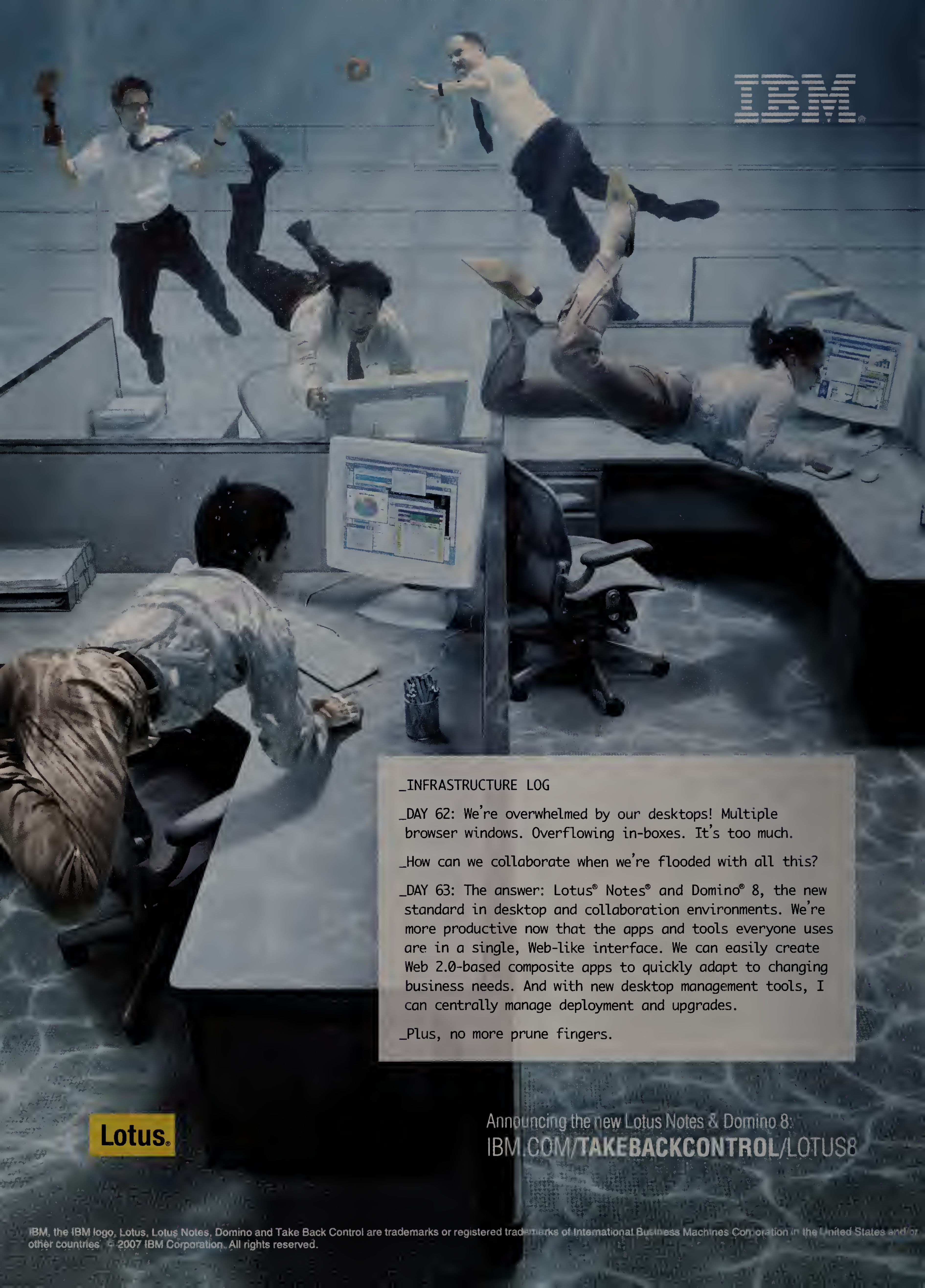
_DAY 69: All we need is one specific piece of info. Gil almost had it, but his hand cramped. How are we supposed to find trusted business info when these massive volumes of disparate, conflicting information keep pouring in?

_Gil just grabbed a stuffed panda.

_DAY 71: The answer: IBM solutions for leveraging information. Now we can cleanse info and standardize source data fields for consistency and accuracy. I can create a single, comprehensive and accurate record of info across our source systems. Finally, I can provide a unified, trusted view of our information so everyone can make better decisions.

_Our view of our data is now scalable. Just in time — I think we ran out of quarters.

Download the Innovation and Competitive Advantage white paper:
IBM.COM/**TAKEBACKCONTROL**/ACCURATE



_INFRASTRUCTURE LOG

_DAY 62: We're overwhelmed by our desktops! Multiple browser windows. Overflowing in-boxes. It's too much.

_How can we collaborate when we're flooded with all this?

_DAY 63: The answer: Lotus® Notes® and Domino® 8, the new standard in desktop and collaboration environments. We're more productive now that the apps and tools everyone uses are in a single, Web-like interface. We can easily create Web 2.0-based composite apps to quickly adapt to changing business needs. And with new desktop management tools, I can centrally manage deployment and upgrades.

_Plus, no more prune fingers.

Announcing the new Lotus Notes & Domino 8:
IBM.COM/**TAKEBACKCONTROL**/LOTUS8

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